ENGAGING VESTIGES OF NEGATIVE SOCIAL MEMORY:

From an order of segregation to linkage

Tomas Wren-Sargent

November 2017

Supervisors: Stella Papanicolaou and Mike Louw

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ABSTRACT

The theme of this project is the architectural opportunities of spaces of negative social memory. The issue that the work focuses on specifically is the case of the former Non-White Main Line Concourse building, located on the flyover of the Cape Town Train Station precinct. The building has slowly deteriorated since the end of apartheid when its function was made redundant. Today it stands as a squalid remnant of the segregated society it was built to serve. Damaged and decaying, it provides an opportunity for powerful architectural transformation.

This project establishes a value in the negative social memory that the building holds, presenting an opportunity to transform the site into a powerful architecture that encourages society to learn from the injustices the building enforced. Through understanding the spatial potentials of the building, a design intention of integration emerges, able to subvert the segregated nature of the existing.

The paper locates itself as a research piece on the opportunities presented by remnants of socially and politically challenging histories.

CONTENTS

PREFACE

The motivation for this project comes from what is considered to be a contentious topic at the level of society – remnants of negative social memory. The project attempts to find the value in one such vestige, with the intention of framing a spatial architectural intervention that creates a dialogue between the existing and the new.

The architectural impetus therefore is to develop a method of relating society to a symbolically negative structure, through fundamentally shifting the order of the building with the intervention.

A clear theme that emerges through this project is that of memory. The project proposes ways in which spaces that hold memory can be reprogrammed to relate them to society, bringing the spaces back into a public discourse. Therefore, the history and memory that the site holds is of key importance to this project as a means of engaging wit past ills through societal reflection.

Panoramic view of site overlooking train lines

State of disrepair of existing building

GENERAL INTRODUCTION

This thesis paper makes the case for a way in which stigmatised historical buildings may be interacted with architecturally to benefit society. The intention of the research is to test whether it is possible to give new life to the apartheid vestige of the former Non-White Main Line Concourse building of the Cape Town Train Station through a carefully considered architectural intervention. The project suggests that the negative symbolism and memory that the building holds is in fact an opportunity for transformation to occur on the site. The memory it holds is of value and warrants the reuse of the building, even as it is stigmatised. The approach is to clearly understand the context of the existing site and interact with it in a way that maintains the legibility of the existing while serving to benefit society.

This thesis paper makes the case of a possible way in which society may deal with the historical architectural remnants of an apartheid past, in the context of the Foreshore district of Cape Town. The urban intention of the project is to relate the disused site back to the city through public space and pedestrian scale activity, activating the site and bringing the public into contact with the historical vestige of a segregated past.

LIMITATIONS AND SCOPE

The project deals with a building that is the product of the apartheid state, and is thus symbolic of larger issues that still affect South African society in the present. The design project, however, recognises its own limitations in terms of what is achievable for a single piece of architecture at the scale of a building. The project is thus carefully considered in terms of its reach, attempting not to resolve the complex issues it faces, which prove to be far greater than the site's relatively small scale. The project rather locates itself as a catalyst for further change to occur at an urban scale, focusing on an architecture to talk to the historical vestige of negative social memory.

The project is therefore acutely aware of its own scale, intending to form part of greater urban change with future developments in the city.

PART ONE: ACCRUED SYMBOLISM AND CONTESTED HERITAGE

Within the context of South Africa, the negative apartheid history is still present and relevant in political and social discourse. In the context of the site, which is the former Non-White Main Line Concourse for the Cape Town Train Station (also known as the Good Hope Concourse), the building has a controversial history. The building was constructed by the apartheid government to enforce policies of segregation. In the current post-apartheid South African context, this building has seen minor, impermanent use over the last few decades; but for the most part it has been left abandoned. Due to its abandonment, the building has come to symbolise the negative history of the social and political context of Apartheid.

The research begins with an investigation into symbols of social memory, focusing on the work of philosopher Pierre Nora, in order to establish a theoretical framework that contextualises readings of symbolic vestiges within society. This investigation will begin to formulate a manner in which to engage with material objects of negative social memory.

Figure 1: Collage of site as lieux de memoire (author's image, 2017).Collage to show negative social associations of the site.

Sites of Social Memory

Philosopher and historian Pierre Nora wrote extensively on the topic which he termed sites of memory (‘lieu de memoire’), referring to them as a “significant entity… which by dint of human will or the work of time has become a symbolic element of the memorial heritage of any community” (Nora 1998). While the concept of a significant entity holding memory is straightforward, the understanding of the entity as symbolic is particularly interesting. Nora explains that these entities from the past influence society’s condition, writing: “We no longer inhabit that past, we only commune with it through vestiges – vestiges, moreover, which have become mysterious to us and which [we] would do well to question, since they hold the key to our "identity", to who we are” (Nora 1998). It is posited that engagement with ‘vestiges’ or ‘significant entities’ be a means to establish a dialogue between current society and elements of our history.

The thesis proposes a way to deal with the historic vestige of the Good Hope Concourse.

The South African Context

Nick Shepherd, a Social Archaeologist at the African Studies Department of UCT, has noted how in the context of South Africa, the layers of history that make up the spaces we inhabit still exist in the present. He argues that the city bares a range of histories which acted upon it, and that therefore the South African cities we occupy retain characteristics of the Apartheid City (Murray, Shepherd and Hall 2007). This is to say that different city forms overlap in the present of South African cities, still evident within their current context. They linger as layers of history, acting upon the present.

Professor Brenda Schmahmann of the University of Johannesburg argues for a constant reassessment of public art in the current South African context, noting that these ‘vestiges’ of our past may be symbolically in conflict with current society (Schmahmann 2011). Former judge of the Constitutional Court, Albert Sachs, extends this notion, arguing that vestiges which may no longer express alignment with current society be acted upon by creatives, and in this way contextualise the vestige in a dialogue with its altered form (Sachs 2015). This is considered a productive way to deal with relics of apartheid in the context of South Africa.

In the case of the Non-White Main Line Concourse, its lack of use since the end of apartheid have left it in a static state, whereby it has now come to symbolise the segregation which it once operated under. In contrast, the main terminal of the station has been open to all races since the end of apartheid –and while it previously represented the negative segregation which it enforced, the site now no longer retains that meaning. Through the continued use of the site and later architectural updates, this vestige is no longer the symbol of segregation it once was.

The prevailing question to be explored in this thesis is thus how to engage with symbols of negative social memory. The research establishes an opportunity on the part of the design intervention to engage critically with the vestige that is the Non-White Main Line Concourse. The approach towards the project will be framed in the contributions of Albie Sachs, by challenging the 'monologue' of the negative memory of the building with the contribution of new architecture that establishes a dialogue within the historic vestige.

The following section of the investigation researches a set of architectural projects that deal with vestiges of social memory, showing a range of approaches whereby a dialogue is established between old and new through architecture.

Figure 2: Derelict building, historic vestige (author's photograph, 2017)

Architecture as a tool to deal with negative social memory

Introduction

The subsequent examples chosen provide a range of ways in which sites of negative memory have been engaged architecturally. The projects range from a global to local scale, with the work of Daniel Libeskind and Wang Shu forming two contrasting yet compelling approaches. The local example of the South African Constitutional Court is a project that deals with many of the same themes as the chosen Non-White Main Line Concourse building, locating itself on the site of significantly reprehensible apartheid history and transforming it through strong symbolism evoked in the architecture. The focus of this section of the research is into the varied architectural responses to memory.

The approaches to memory that are explored are found in a few primary projects:
The first to be explored is Studio Libeskind's *Dresden Military History Museum* (2011), an adaptive reuse project which utilises contrasting spatial orders to draw attention to the architectural message.
The second is Amateur Architecture Studio's *Ningbo Historic Museum* (2008), where memory is incorporated into the architecture through materiality.
Thirdly, OMM Design Workshop and Urban Solution's *Constitutional Court* (2004) will be considered, where historic vestiges are juxtaposed with new programme in a public setting.
The final project is Herzog de Meuron's *Tate Modern* (2000), an adaptive reuse project whereby memory is maintained as a backdrop for the new art gallery programme the site hosts. Here, the project does not deal with negative memory, but is of particular interest in the way in which it deals with the memory the existing architecture holds.

Figure 3 (top left): Studio Libeskind's Dresden Military History Museum (2011)
Figure 4 (bottom left); Constitutional Court, South Africa (2008)

Figure 5 (top right) Wang Shu's Ningbo Historic Museum (2008)
Figure 6 (bottom right) Herzog de Meuron's Tate Modern building (2000)

Figure 7 (top): Formal contestation of new and old, daytime. (2011)
Figure 8 (bottom): Formal contestation of new and old, night time. (2011)

Studio Libeskind's Dresden Military History Museum (2011)

Studio Libeskind's *Dresden Military History Museum* (2011) is an adaptive reuse project that engages a site of significant and contested memory – an 1897 neoclassical military building. The structure has held a military connection throughout its existinence by the programmes it accommodated; initially an armoury, then later a Nazi museum and thereafter a Soviet and East German museum. Libeskind's formal intervention is to contest the symmetry of the neoclassical façade with a massive steel and glass shard that appears to push through and contest the symmetry of the existing building.

Whereas the old building remains rectilinear in plan with vertical walls and structure, the intervention creates a series of planes that run at angles opposed to the established grid, emphasising its difference from the old through a departure from the conventional order (Hansen-Glucklich 2014).

> *"It was not my intention to preserve the museum's facade and just add an invisible extension in the back. I wanted to create a bold interruption, a fundamental dislocation, to penetrate the historic arsenal and create a new experience. The architecture will engage the public in the deepest issue of how organized violence and how military history and the fate of the city are intertwined."*
>
> *—Daniel Libeskind, 2012*

The design actively encourages a reconsideration of the past through the existing vestige (the original building) by reframing the way in which it is perceived and interacted with by the public. The new exhibition spaces that the intervention creates are notably different from the existing, and as such the presentation of the artefacts is reconsidered (Hansen-Glucklich 2014). The presentation of the objects does not glorify them by letting them be viewed in a traditional, neutral setting; rather the relationship between object and viewer is more dynamic, encouraging the viewer to reconsider the nature of the artefact in question. The gallery spaces in the intervention contrast the existing with their jagged, angular nature, provoking a different response from visitors through the new formatting of spaces.

The contrast of new material to existing is carefully considered. The existing building is a plastered stone block building, and reads as an old yet maintained structure. Studio Libeskind's intervention contrasts this with modern materials of steel and glass, emphasising the dissimilarity between existing and intervention. The choice of materials allows for further contrast, too. Where the existing stonework speaks of solidity and rigidity, the front portion of the intervention appears to dematerialise at night time due to the thin metal sheeting allowing for light to penetrate through it. As such, the architecture of the intervention contrasts that of the existing – where the old building is consistent in its formal reading, the new steel structure fluctuates between existing and dematerialising over time (refer figs 7 and 8).

Figure 9 (top): Existing historical displays of the Dresden Military History Museum, (2012).
Figure: 10 (bottom): New displays of the Dresden Military History Museum, (2012).

Figure 11: Wapan construction technique using recovered materials (2011)

Amateur Architecture Studio's Ningbo Historic Museum (2008)

The *Ningbo Historic Museum* by Amateur Architecture Studio was designed between 2003 and 2008. The project locates itself in the Chinese province of Ningbo, which underwent rapid urbanisation in the early 2000s, resulting in the demolition of approximately 30 small villages in order to make way for the new city to replace it. The result of this process was an abundance of traditional building materials being made available.

The project reuses these materials for the memory and associations they hold. Materials are reused on the façade of the building in an attempt to convey the memory of the traditional villages they originate from. To the viewer who is acquainted with the materials of the traditional villages, the reused materials hold memory from whence they originate (Shu 2016). Whereas not all of the materials were originally used in the walling of their traditional structures –such as the tiles that were formerly used as a roofing element –all are used to form the façade of the new design (refer fig 11).

Through the involvement of local craftspeople in the design process, a vast array of recycled materials were reused in a traditional method of wall construction called 'wapan' (Shu, 2016). Thus, the design utilises traditional materials through a traditional craft, but the materials are not used in a traditional manner. The bricks (walls) and tiles (roofs) are abstracted as a memory device and used in the new façade system.

Wang Shu argues that the reason for referring to traditional ‘wapan’ construction techniques (the packing technique that creates a stable structure in spite of the varied sizes of the elements that make up the surface) is to keep the traditional mode of construction alive. He argues that if it is simply memorialised inside the building as an artefact or display, the technique dies (Shu 2016).

The references to memory established through the reuse of materials is continued in different ways throughout the design. Sections of the façade are cast in concrete, a modern material, but they are not cast in a purely modern way. They are given a pronounced texture through the use of bamboo shuttering, whereby the traditional material used to cast the walls can clearly be read on the façade in its inverse. The use of bamboo shuttering here is neither noticeably modern nor traditional –the concrete is a modern material, while the bamboo used here as formwork is a traditional building material. The technique is a new way that references both the contemporary and the traditional.

This method contrasts the ‘wapan’ technique, but the contrast is made subtle by the aesthetic similarities between the two (refer fig 12). Using these methods alongside each other, and at times in the same wall, establishes a relationship whereby the two approaches are clearly distinct, but at times come together and find harmony with one another.

The project utilises materials, both modern and traditional, in new combinations. This allows the memory of the old to meet the requirements of the present in an evocative project. The work pays homage to the rapidly disappearing traditional way of life (Shu 2016); yet does not seek to freeze or glorify the memory, rather attempting to question its relation to the present.

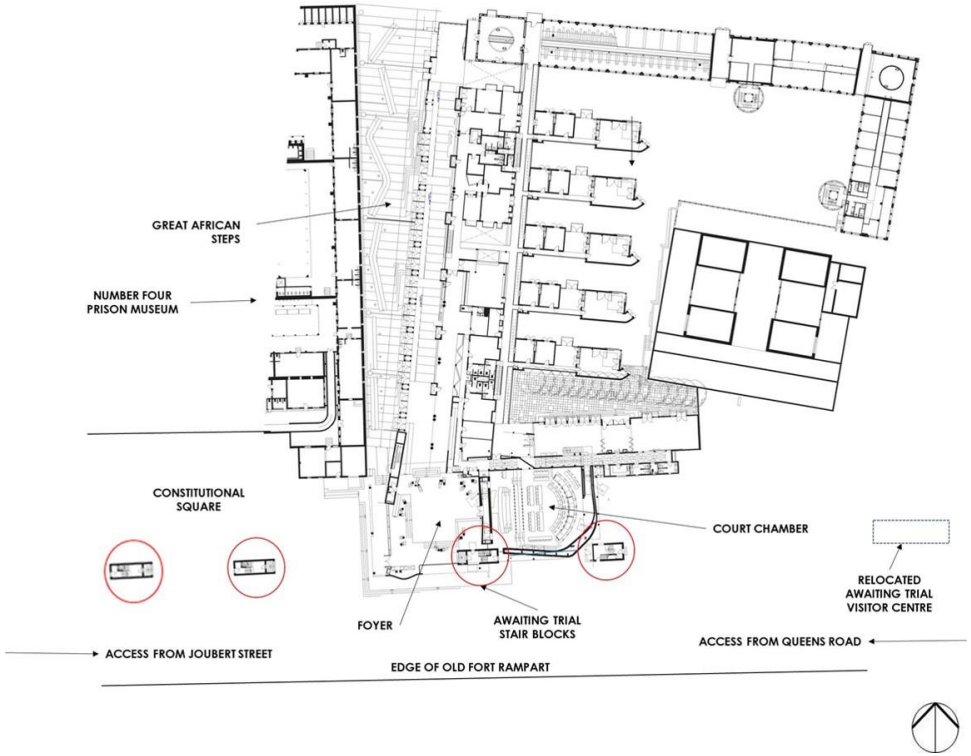
Figure 12: Contrast between recovered materials and bamboo cast concrete (2011)

Figure 13: Staircase of awaiting trial block preserved in new structure (2006)

OMM Design Workshop and Urban Solutions Constitutional Hill (2004)

OMM Design Workshop and Urban Solutions' *Constitutional Court* project (Johannesburg, 2004) actively engages a site of historical value; layering the stigmatised space with the meaning of the new judicial program. The entire site is a historical vestige of its apartheid past, where it served as a prison complex; the notable space of the detention of ANC members amongst other political prisoners. Through the layering of the historical with the new and the transformation of the site to a part of the public realm, the project makes the memory in the precinct accessible to the society around it (Buckland and Law-Viljoen 2006). The public walkway that traverses the site (the Great African Steps, indicated in fig 14) forms the primary movement armature for the site, linking the important historical buildings to the new judicial program.

In order to accommodate the new program for the intended judicial precinct, the historically significant Awaiting Trial block had to be demolished. The Awaiting Trial Stair blocks were kept and adapted as light boxes to give imageability and presence to the precinct at the scale of the city (Buckland and Law-Viljoen 2006).



The project is an effective example of how new program can be accommodated in a site of significant negative memory. The public precinct responds thematically to the closed off nature of the site when it was a jail precinct. Through the layering of a new spatial order onto the site of negative memory, the project establishes meaningful dialogue between the space's history and its current public reality.

Figure 14 (top left): Constitutional Hill Plan (2006)
Figure 15 (top right): Façade facing Constitutional Square (2006)
Figure 16 bottom right): Reused Awaiting Trial Block staircases (2006)

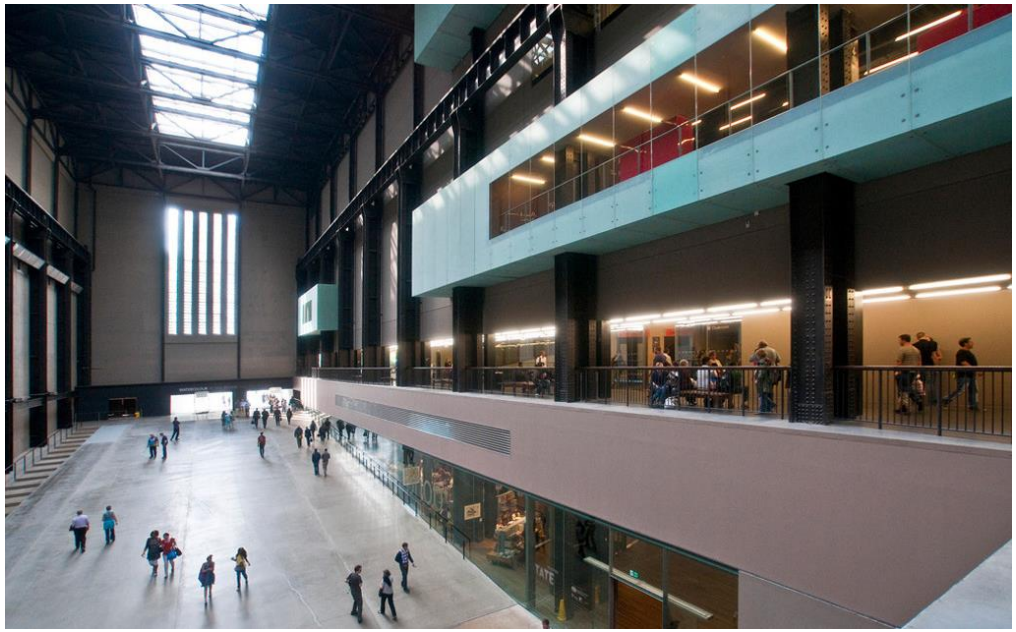


Figure 17 (top): View of the Tate Modern from across the Thames (2002).
Figure 18 (bottom): Foyer Space of the Tate Modern Art Gallery (2002).

Herzog de Meuron's Tate Modern Building (2000)

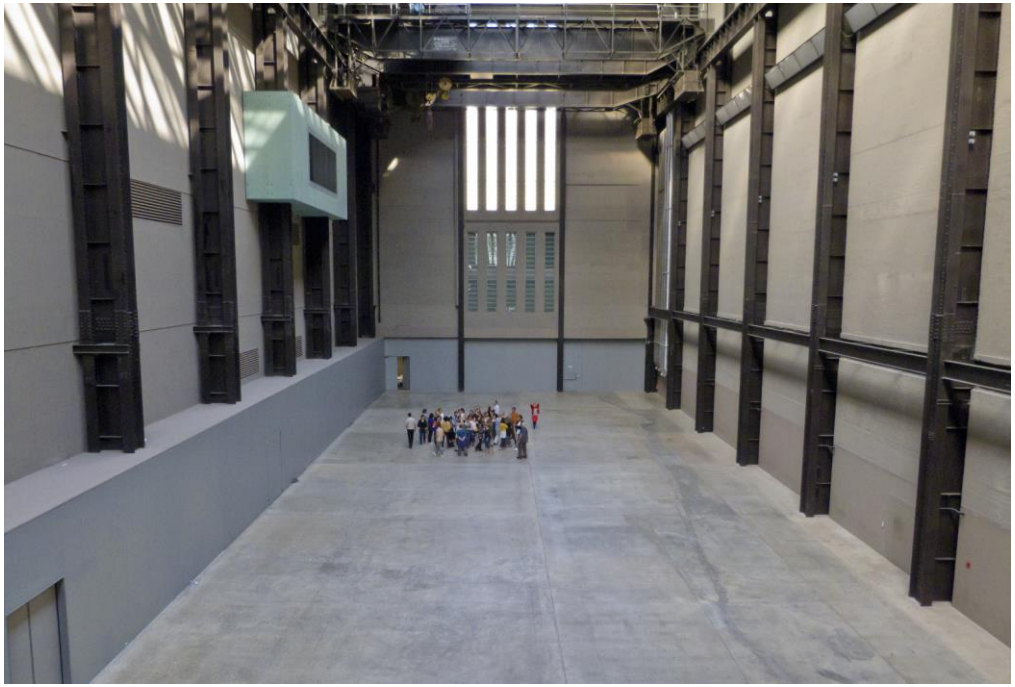
Herzog de *Meuron's Tate Modern* (2000) is an adaptive reuse project which converted a disused London power station with significant historical presence into a large-scale public art gallery. The design alters the approach to the monolithic structure by placing public gardens in the surrounding site, allowing for relief space between the iconic building and its surrounding urban environment.

The architectural language of the intervention contrasts the industrial nature of the existing. The new pronounces itself, contrasting the existing dark masonry with the translucent glass box, which sits atop the main building form. The formal play between the chimney of the original structure and the new glass box is apparent through their similar proportion and rectilinear shape (refer figure 17).

The project is of particular interest in the way in which it maintains the memory inherent in the building. The new public foyer utilises the existing volume which was previously a turbine hall. Through this, the memory of the space as a power station is evident to the viewer. The material nature of the intervention in this foyer space contrasts the existing industrial aesthetic.

In the foyer, the box volumes of the intervention are brought into the main volume, pronouncing the new over the existing structure. The massive steel columns which border the space, however, are visible within these new volumes. The material contrast is notable, with the new rendered in glass cladding panels; well lit from inside their volumes.

Light is used in the foyer to pronounce the difference between the orders of the existing space and the boxes of new programme. The glass box above the foyer space filters natural light into the main foyer volume. The new protruding volumes of the intervention are all artificially lit and, through this, they pronounce themselves as different from the main foyer space (refer fig 20). Here, a language between old and new is established through the use of light.



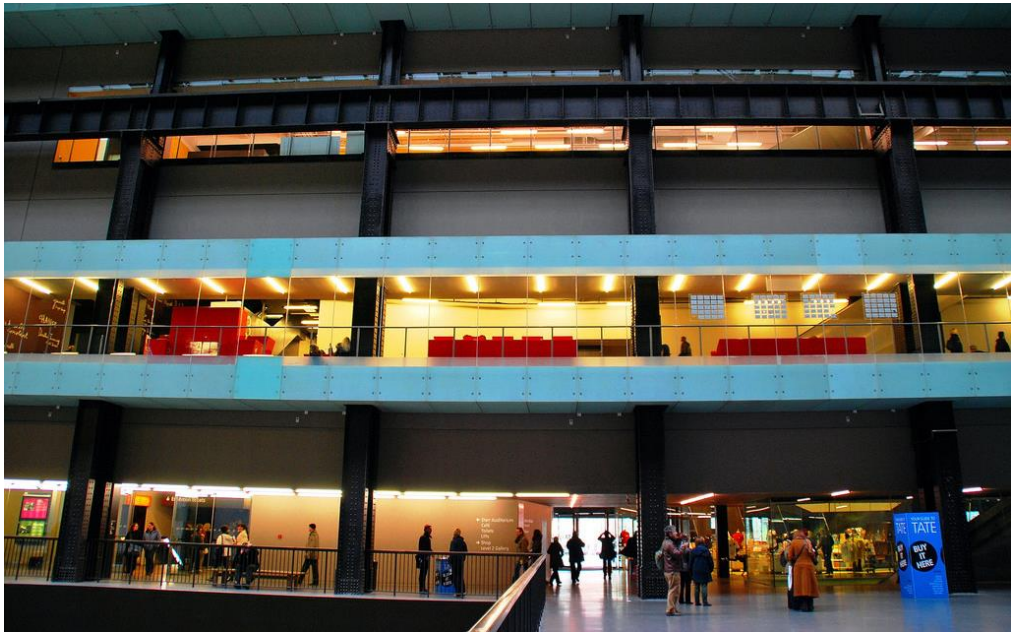


Figure 19 (top): Foyer space. Note the presence of existing and new (2002)
Figure 20 (bottom): New programme protruding into foyer space (2002)

The projects studied in this section provide a range of contrasting methods of dealing with memory through architecture.

Daniel Libeskind's work deals with the theme of symbolism, as evidenced in the *Dresden Military History Museum* (2011) and previous works such as the *Jewish Museum* (1999, refer appendix). His interventions use bold formal moves to contest and contrast the existing building, in turn allowing the symbolism of his intervention to contest that of the existing. In so doing, Libeskind's work creates a formal dialogue between old and new. The use of form to convey message also existing in Herzog de Meuron's *Tate Modern* (2000). The light box added to the top of the existing structure is the most notable formal intervention, articulating the foyer space below. In contrast to Libeskind's work, the order of the existing spaces is emphasised through the intervention. As such, the intervention does not pronounce itself as different from the existing in the same manner as Libeskind's formal contestation.

A probable explanation for this is due to the fact that Libeskind's work is actively commenting on the symbolism of the existing military museum, whereas the Tate Modern project does not pursue the same message.

OMM Design Workshop and Urban Solutions' *Constitutional Hill* (2004) project makes similar symbolic gestures to Libeskind's Dresden in the choice of site and nature of the architectural intervention.

The jail precinct that forms the site of the project is transformed from a symbol of apartheid oppression to one of democratic judiciary. By encouraging public space through the precinct, the public are actively encouraged to engage with the sites of negative social memory.

At the *Dresden Military History Museum* (2011), the intervention is imbedded into the existing historical vestige, but in the *Constitutional Hill* (2004) the new program exists separate to historic elements in the precinct. In the latter, a spatial connection is encouraged through the public spaces, such as the Constitutional Square and the Great African Steps.

The dialogues between old and new is of particular interest to this study. By bringing the new into the space of the old, Libeskind is able to create a direct dialogue into one architectural instance that encourages the user to question the spaces of the existing. The new spaces created in the *Dresden Military History Museum* (2011) contrast with the existing in the untouched portions of the building, and by bringing them into the same spatial experience, the contrast between the two is made clear.

The lines of old and new are blurred in Amateur Architecture Studio's *Ningbo Historical Museum*, where materials which hold memory are used in traditional yet unconventional ways so as to give them new life. This memory element is contrasted with the textured concrete, which is a new material that holds reference to the bamboo formwork used in its construction. As such, its construction refers to traditional materials. The project therefore shifts the dialogue to a contrast between old materials holding memory and new materials used in reference to the old.

All of the projects studied in this section provide valuable ways of dealing with sites of memory. The design draws inspiration from them in order to formulate an appropriate approach to dealing with the stigmatised space of the Former Non-White Main Line Concourse building.

Figure 21 (top): Contrasting materials at Ningbo Historic Museum (2008)
Figure 22 (bottom): Formal expression at Dresden Military History Museum (2011)

PART TWO: FRAMING A RESEARCH APPROACH

Approach

The approach to memory and symbolism in the existing building comes from a careful consideration of the value of the existing building, its spatial and material qualities and urban context. The intention of the project is to breathe new life into a derelict site in a manner that activates the public domain.

The building has significant value in the memory that it holds, even as the memory is of a negative, segregated past. Thus, the intention is to transform a site with a negative past to a piece that talks to an improved future. Through this, the memory of the building can be maintained. By holding the main space of the building as part of the public realm, public discourse can be held in a transformed space. The project therefore opposes the erasure of significant spaces of memory, advocating rather that we reuse these historical vestiges for the benefit of society.

By challenging the symbolism of the existing building with an architectural intervention, the site can be placed in a dialogue between its history and its current use.

Contextualising the site:

The site of the chosen building is located on the south eastern edge of the flyover of the Cape Town Train Station, where the Christiaan Barnard Bridge (formerly Oswald Pirow) borders the flyover. The former Non-White Main Line Concourse building (also known as the Good Hope Concourse) was developed as part of the precinct of the Cape Town Train Station in 1967. The building was designed during apartheid as a segregated long distance train concourse for non-white members of the public. The building therefore has a contentious history in its relation to apartheid, and holds significant social memory as a result. The site is located in close proximity to a range of other sites of significant memory at a city scale, as indicated in figure 24.

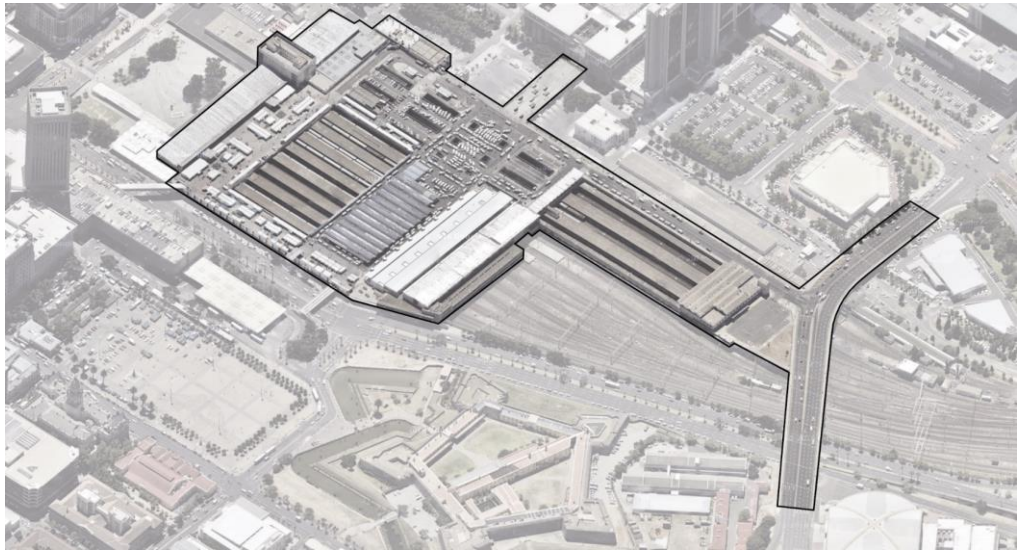


Figure 23: Flyover level of the Cape Town Train Station, including Christiaan Barnard Drive (own image, 2017).

Proximity of building to other significant sites of memory: The Slave Lodge, City Hall and Grand Parade, the District Six Museum and Homecoming centre as well as the Castle of Good Hope.

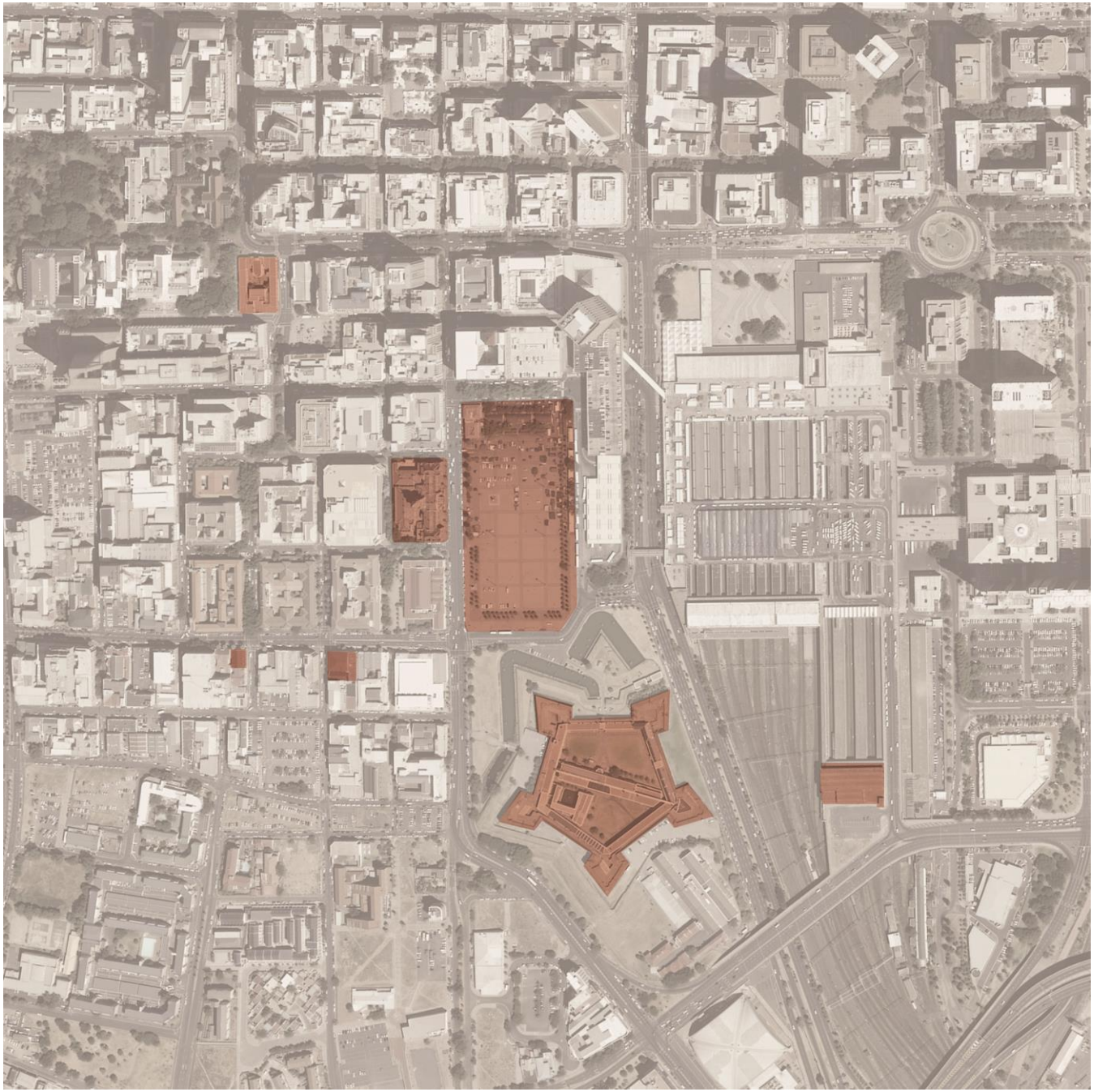


Figure 24: Urban Plan, NTS (own image, 2017). Proximity of site to other sites of social memory (own image).

PART THREE: URBAN CONTEXT

The aim of this section is to provide a theoretical lens through which to understand the greater urban context of the Foreshore. The theoretical framework established will clarify a reading of the train station precinct as part of this Foreshore district in order to motivate the design response at an urban level. This section of the paper refers to the work of Kevin Lynch's theory of the City as a Machine 'normative model,' as a primary theoretical basis.

The City as a Machine normative model, evident in the work of the city planners of the apartheid regime, is clearly still visible in the Foreshore of Cape Town. The division of areas of the city into separate regions is achieved in the City as a Machine model through static enclaves and armatures of movement. It is of importance that the realisation of this normative city model be fully understood to engage with the current South African city critically.

Figure 25: Eastern Boulevard under construction. District Six is pictured right (1967)

In his book *A Theory of Good City Form* (1981), Kevin Lynch presents three normative models for cities in different stages of their development. It is important to understand that the normative model is an abstraction based on observation of the development of cities, forming a set of rules that guide the development of the normative city. This is to say the normative model is a city imagined under a certain power structure; deliberately ignoring a range of factors that influence real cities. The models are presented as chronological following shifts in power structures that are common in the cities he observed. This may give the impression that a given city is drastically changed as successive normative models come to act upon it, however this is not the case, the normative models are legible as layers in the progression of cities.

Lynch's work is primarily referential of Western cities and the development thereof, but the theory is applicable in the case of the Foreshore district as its planning was referential of other European planning and design at the time.

The City as a Machine normative model

In his book *Recombinant Urbanism* (2005), David Grahame Shane notes how these models act simultaneously on cities, noting how they "construct a dynamic urban bricolage of patches of order… They are thus 'dissipative structures,' forming and dissolving through time, not eternal, always moving with urban actors' preferences and resources." (Shane 2005).

A basic understanding of Lynch's three normative models will better contextualise the normative model in question. The three models are:
The City of Faith: The premodern city of agrarian societies. The city is organised around a central static element that holds significant power in the city occupied by the most rulers. The powerful control the dissemination of information from the centre. Movement armatures all conclude in the central element, enclaves organise themselves around these armatures, and as such the centre maintains its pre-eminence over the populace (Lynch, A Theory of Good City Form 1981).

The City as a Machine: The modern industrial city. There is no central organising power or actor, rather the city is seen as a collection of 'cells;' these are singular enclaves that are grouped by function, connected to the rest of the network by extensive armatures. Functions are separated out from one another to ensure productivity of the overall, and the total system is pictured as a machine made up of these parts. Lynch argues that the system is machine-like in that its parts are connected in a linear manner "focussed on production, consumption and growth" (Shane 2005). Free of the central organising element of the City of Faith, armatures connect areas of interest within the city, rather than connecting the city to a central organising point.

The Ecological City: The post-industrial city. Here, the primary actors are an elected elite who respond to the wills of the populace (Lynch, A Theory of Good City Form 1981). The system is based off constant feedback between different power actors within the city. Boundaries between enclave and armature are not as clear as the City as a Machine. The system is ecological in that it learns from its failures, repairs itself, and tends toward a state of equilibrium.

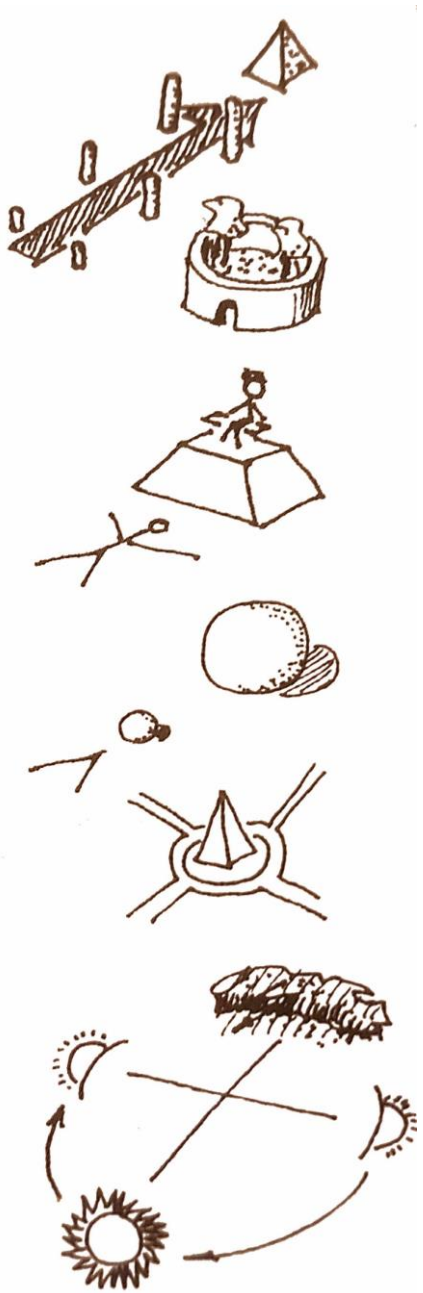


Figure 26 (left): City of Faith concepts, Kevin Lynch (1981)
Figure 27 (right): City as a Machine concepts, Kevin Lynch (1981)

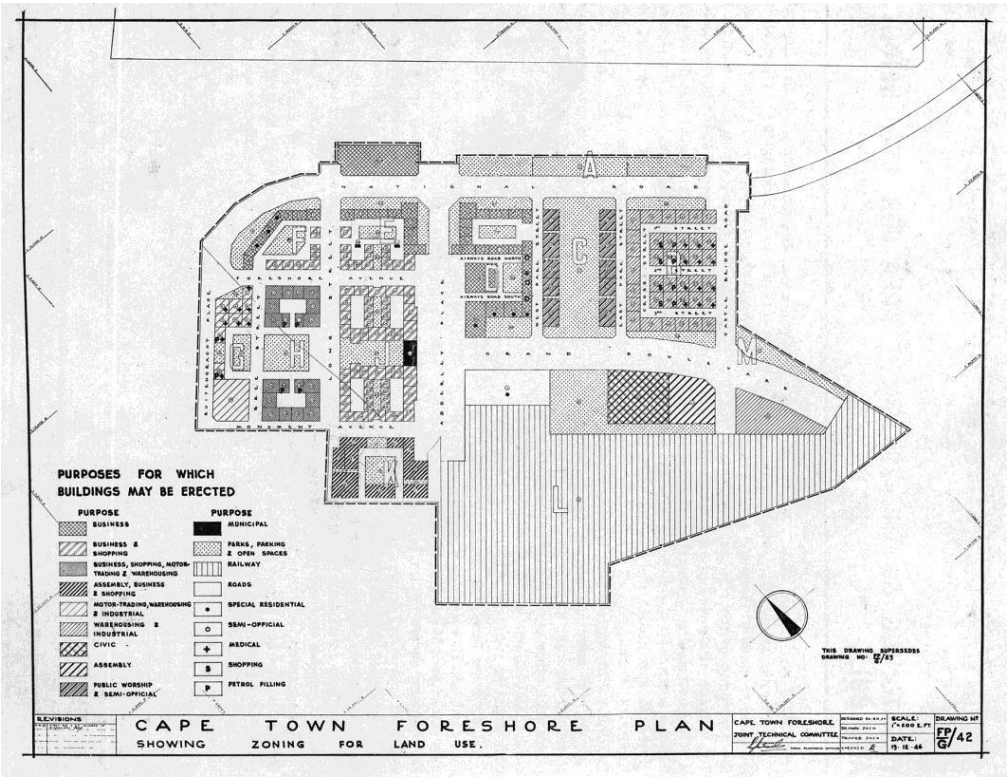


Figure 28 (1947): Modernist influence on the Foreshore Plan, with large movement routes and singular enclaves as enforced by the zoning scheme (1947 plan).

The City as a Machine Normative Model in the Foreshore

Modernist planning was one of a number of primary informants on the design of the Foreshore, and this is clearly visible in the site today. The precinct of the Cape Town Train Station is steeped in the history of the development of the Foreshore – in fact, the train station was part of the initial visions of the district. A key source for this discussion is Nicholas Botha's 2013 thesis into the planning of the Foreshore, which talks to the major role-players and design influences involved in the project.

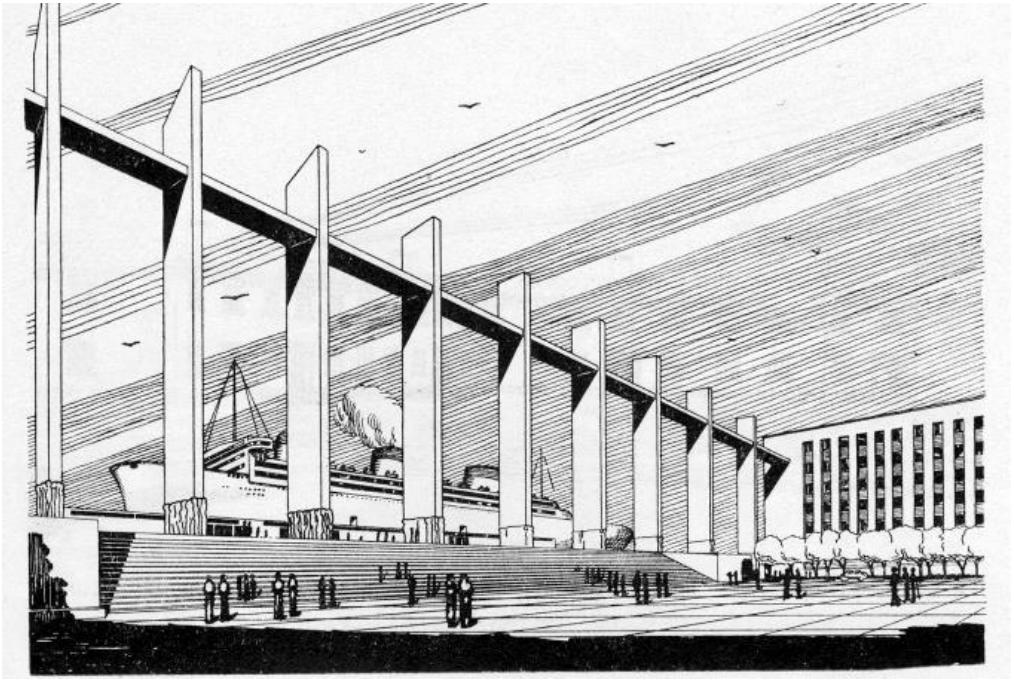
The Foreshore development in Cape Town, South Africa, was a large-scale land reclamation and urban planning project, which took place between 1930 and 1945. The project was initiated by the South African Railways and Harbours Department (SAR&H) to provide sizeable infrastructure related to both modes of transportation. This infrastructure can be considered as a requirement of the City as a Machine normative model, clearly showing the influence within the greater Foreshore site of the parameters of said model. The land reclamation occurred between 1943 and 1945 (Botha 2013). The urban plan of the Foreshore was only finalised in 1947 following competing visions from the SAR&H and Cape Town City Council.

The design iterations clearly show the conceptual development of the project. Initial design sketches from Cape Town City Council's contracted designer, Eugène Beaudouin, speak to 'city beautiful' influences, wherein the Foreshore site forms a grand entrance to the city from the Duncan Dock. Later design iterations talk to the growing modernist influence on the project (Refer figure 30)

The City as a Machine normative model is clearly visible in the urban environment that emerged from these design iterations. A main design informant on this Modernist planning model was the CIAM (International Congress of Modern Architecture) and the Athens Charter (1933) which emphasised the repetition of like enclaves grouped together at a large scale linked by extended armatures (Lynch, A Theory of Good City Form 1981). The emphasis that this model places on spaces of flow is clearly evident in the Foreshore, with vehicular armatures dominating the urban environment.

The scale at which the Foreshore was realised sits in clear difference to that of the older parts of the city. The Foreshore plan (figure 34) indicates the massive size of the blocks planned to form the districts of the new region of the city. The large roadways and boulevards planned divide the cells (or enclaves), and have led to an environment that is fundamentally unfriendly to the pedestrian through scale, allowing other transport forms to dominate the space.

Some of the boulevards planned were replaced with elevated freeways in the final design, such as the road network that runs parallel to the Duncan Dock. This network creates further lost space around and beneath the roadways. In a planning attempt to favour the road network, the vehicular armature was further separated from the enclaves around it. This makes these armatures fundamentally difficult to deal with on a design level, as it is problematic to interact directly with the network.



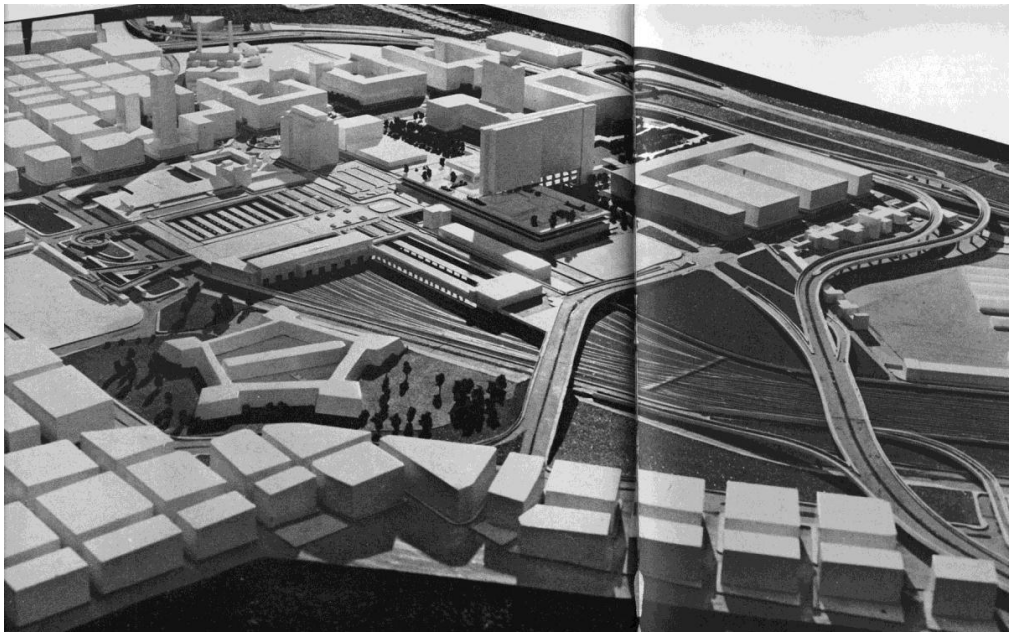
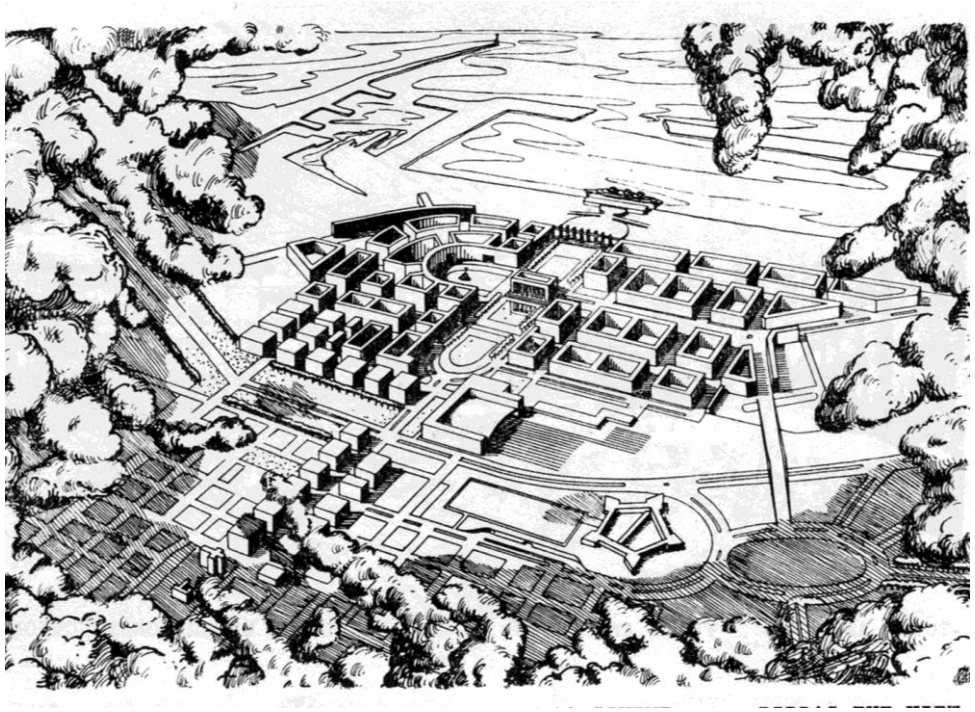


Figure 29 (top): Perspective of arrival from dock, monumental approach (1941)
Figure 30 (bottom): Flyover scheme, which was finally realised (1966)



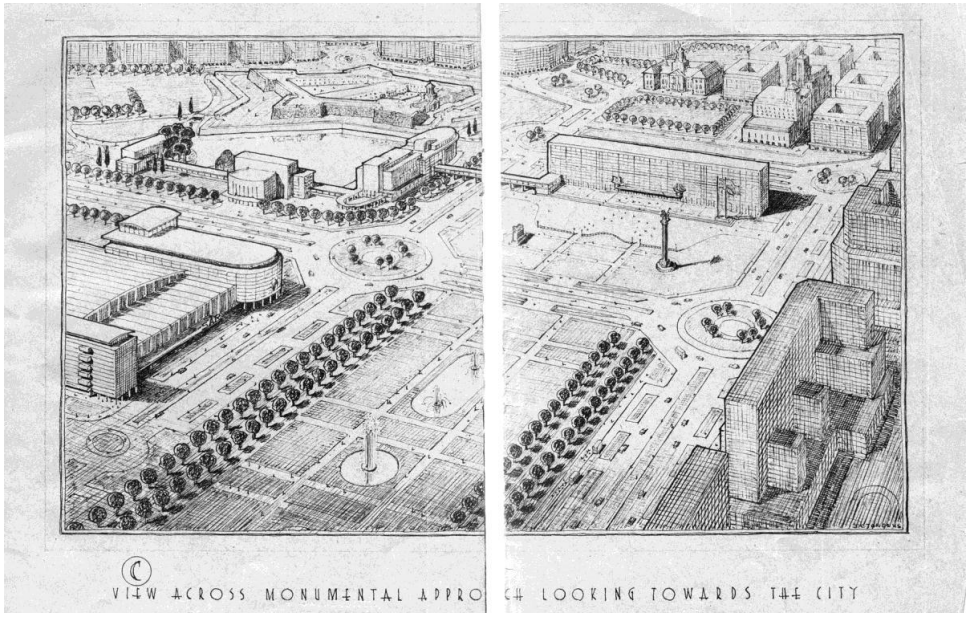
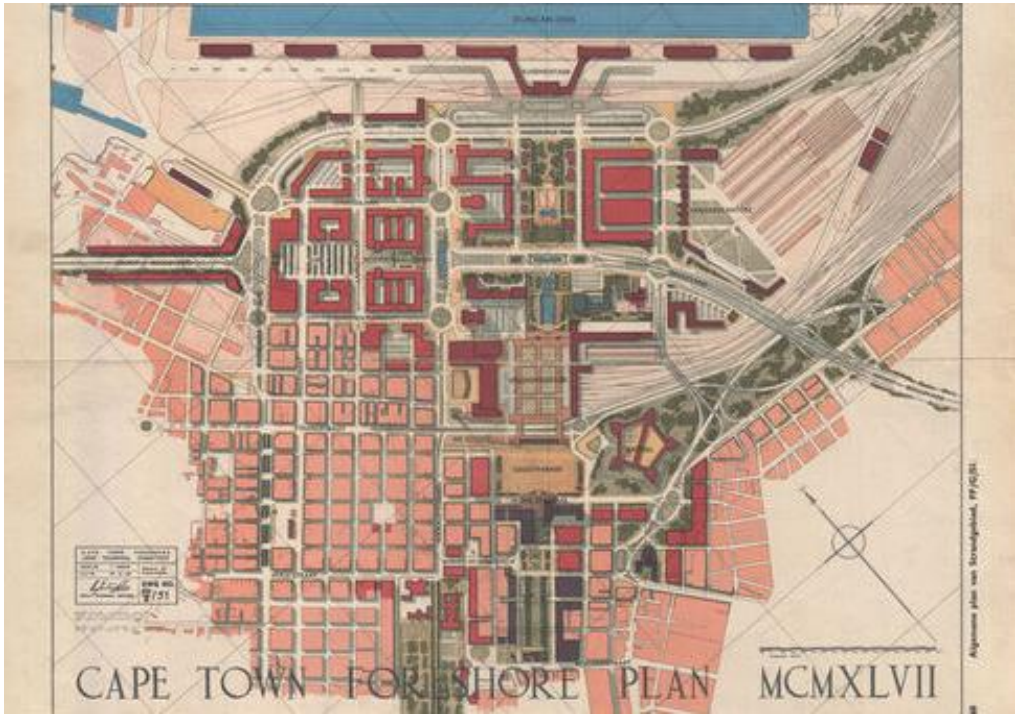


Figure 31 (above) : City beautiful design, monumental approach (1941)
Figure 32 (right) : Aerial perspective of monumental approach (1944)



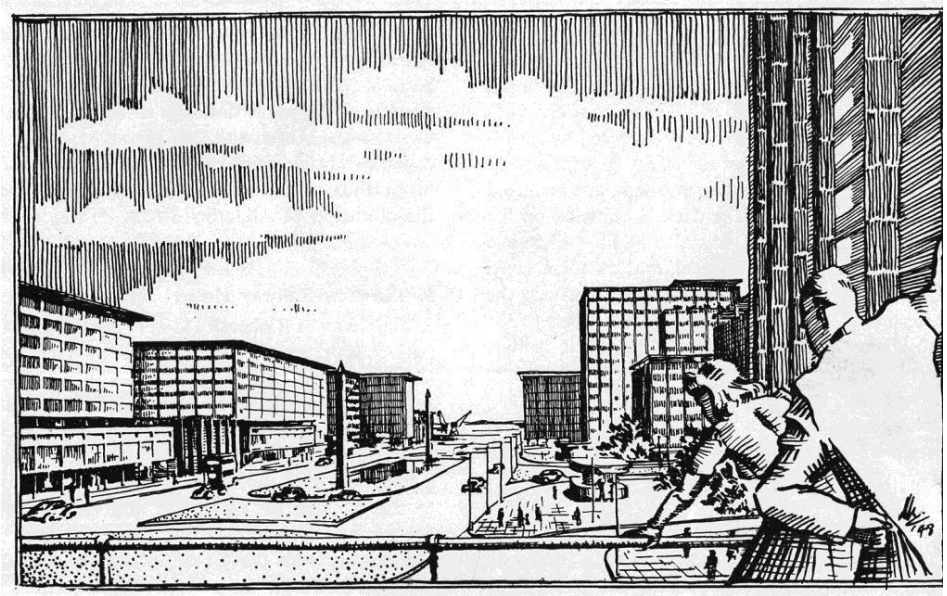


Figure 33 (left): Adderley street. Modernist influence of Foreshore plan (1947)
Figure 34 (above): Foreshore Plan, (1948)

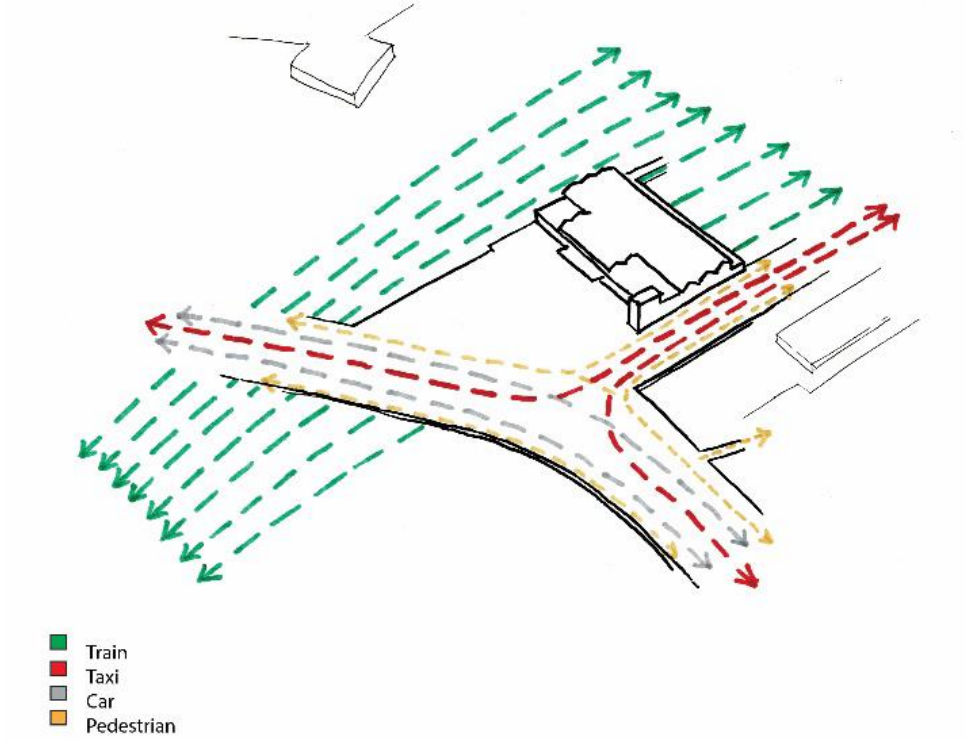


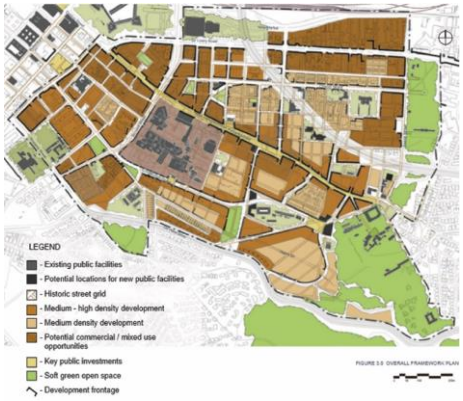
Figure 35: Diagram of movement routes around site. Own image (2017), An analysis of site within the Foreshore district, where separated modes of transport form armatures that dominate the spaces, to the detriment of the pedestrian. As such, the building sits as an abandoned enclave, as 'lost space.'

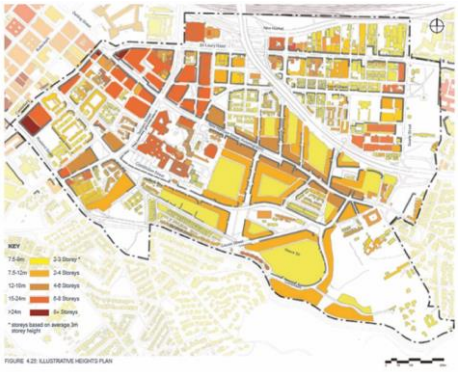
A flaw that has come to define the City as a Machine model is the manner in which it tends towards building new enclaves instead of replacing old ones. Within the theory, each 'cell' should be easily replaced if they fail at their functional purpose. The reality demonstrates that when these mono-programmatic cells fail, the city is more likely to proliferate outwards, extending the boundary of the city unnecessarily, as the reality is this is often more affordable than removing and replacing the old cells (or enclaves) (Shane 2005). This leads to what Roger Trancik describes as 'lost space' – spaces that are ill defined, disconnected spaces. He argues that 'lost space' occurs primarily in Modernist cities where urban spaces become disused, causing surrounding spaces to lose activity, expanding the 'lost space' (Trancik 1986).

Conclusion

The work of Lynch and Shane do not adequately address the repercussions of the scale at which the City as a Machine model is operating. Shane clarifies that the dedicated armature network grows in response to the demand upon it, but the effect of this scale upon the pedestrian requires further consideration. Whereas in the City of Faith, the scale of the city was much smaller compared to the later industrialised cities, and the armatures could therefore maintain a scalar relation to the city's inhabitants. Following the Industrial Revolution and the invention of the motor vehicle, the scale of the armature changed, leading it to become separated from the existing set of enclaves and armatures of the surrounding city. The population increase amounts for the greater demand on the armature network, increasing its scale even further. Thus, the armatures of the Foreshore can be understood more clearly when considering the increased spatial requirements and separated functions of the modern city. Some observations of the scale of the Foreshore related to the pedestrian are indicated in figure 36.

Figure 36: Scale of the Cape Town City Council Building in relation to the pedestrian (Own image, 2017).





Figures 37 and 38: Urban design framework for District Six by Lucien Le Grange Architects and Urban Planners (2013). The areas indicated in orange and red are highest density reaching up to six storeys in height.

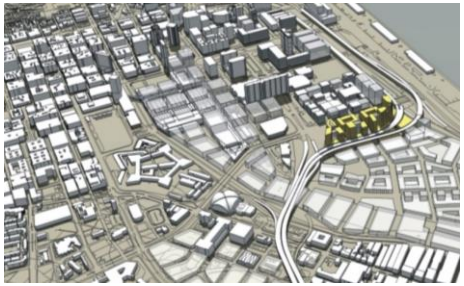


Figure 39 (bottom left): Urban Design framework for Culemborg site by Urban Concepts (2011). Note the intention to develop over the train lines at a later stage.
Figure 40 (bottom right): The Harbour Arch project (2017), which is currently in its initial phases. The scale of the buildings is much larger than that envisioned by the Urban Concepts scheme.

District Six and Culemborg

In order to understand the urban context for the area in detail, research was conducted into the recent development of the urban environment, namely Culemborg and District Six, the two districts bordering the site. Due to the expansion of the inner city, it is clear that the two districts are experiencing rapid development.

Here, research into urban plans for the districts was referred to in order to gain insight as to what these areas are likely to develop into in the near future.

The research findings tell of the divisive influence of the train lines. The schemes focus on their respective sites and accept the train lines as a hard urban boundary. Whether it is the scale or scope at which the respective projects are carried out, none thoroughly consider how they connect to parts of the city over the tracks.

A fair amount of public discourse over the last few years has pivoted on the selling of the air rights over the train lines, as indicated in the Urban Concepts scheme (figure 39). This will offer the opportunity for greater urban connectivity between the divided urban sections.

The issue of connectivity at an urban level is a key design consideration. The scale of the division that the train lines create is extremely large, however, and an issue at city scale. Understanding the nature and importance of the existing connection of Christiaan Barnard Drive and the ability of the chosen site to act at an urban level is an important design consideration.

Figures 41: Plan of projected urban development (NTS. own image, 2017). Dark grey indicates buildings constructed in the last 15 years, and red indicates envisioned future growth per urban design in the area. Growth has been and continues to be predominantly outside of the CBD, moving into District Six and Culemborg.

PART FOUR: THE FOUND BUILDING

Introduction

Through exploring the building in a range of ways, an acute understanding of the building, its symbolism, and its urban context is achieved. This section attempts to formulate an understanding of the existing building in order to frame the design approach to the intervention.

The site is located along the Christiaan Barnard Drive atop the flyover where the road intersects with Station Road. The former Non-White Main Line Concourse sits back from the vehicular armature, fronting onto a parking lot which forms the interface between building and road.

Figure 42: Site plan (NTS own image, 2017). Road names and areas as indicated

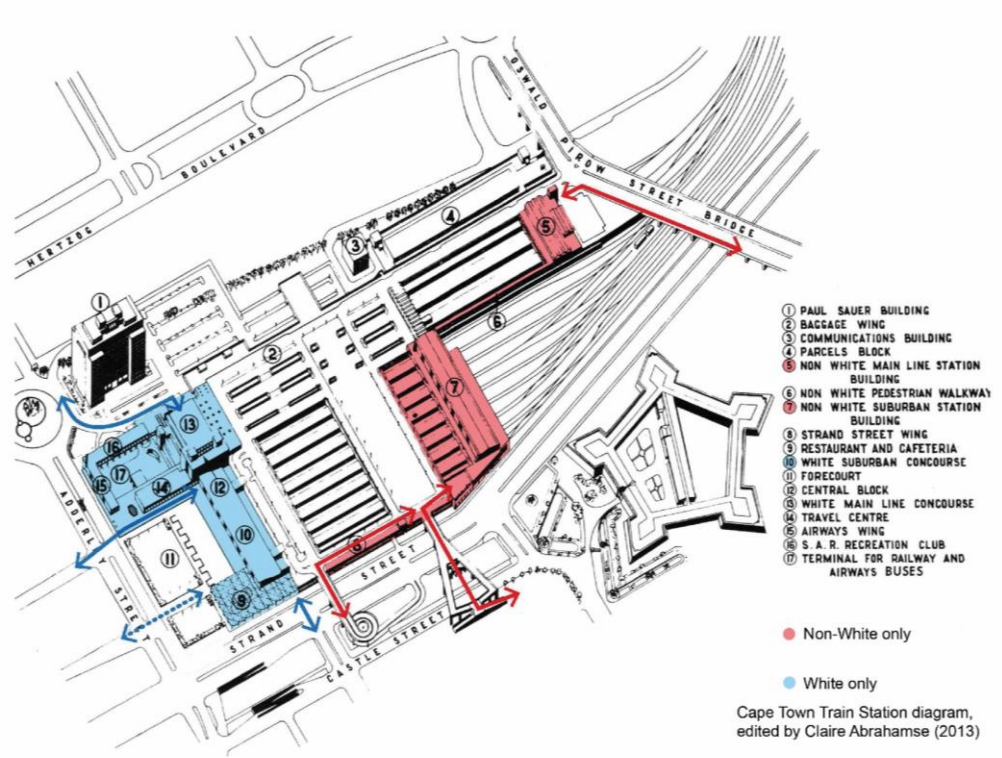


Figure 43: Segregated movement in the Cape Town Train Station during apartheid. (2013). Red indicates non-white movement, blue indicates whites-only movement.

Through a thematic and spatial analysis of the building, it is clear that the building carried out the previous programme of concourse in an intensely negative, segregated manner. The power of the building is emphasised in how it dominated the user, moving people into the city yet disconnecting them from it. The power of the state is expressed in the spatial domination of the user, where the administrative programme is elevated over the users of the building, forcing the users to move below the administrative wing to access the city.

A comparative study was carried out between the Good Hope Concourse and the former Whites Only Concourse (today, the main concourse of the station) in order to understand how the designs treated their respective users. Figure 43 illustrates how the Whites Only Concourse is closest to Adderley Street and the city centre, whereas the non-white concourses are located above and behind the Whites Only Concourse, disconnecting the users from the central city area.

The plan and section comparison of figure 44 illustrates the different spatial treatment of the user that the two concourses in question provide. The user of the Whites Only Concourse proceeds through the building in a linear progression on the ground plane and walks directly into the city centre. The user of the Good Hope Concourse arrives at the level below the building, has to double back and walk up into it, and then moves beneath an administration block into a parking lot with no direct connections to other parts of the city. This comparison clearly illustrates the differing treatment of people in the Cape Town Train Station based on race.

In considering the spatial relationships within the building, the administrative block sits on the level above the double volume concourse and looks down into it, positioned above the only exit from the concourse space. Here, the administrative block keeps watch over the users in the concourse space in a domineering manner, forcing them to pass beneath it in order to access the city.

This domineering experience is exacerbated through the closed off nature of the main concourse space. The double volume space has a distinct lack of windows that allow visibility to the city around. The upper portion of the walls of the concourse space wraps into the wall of the administrative block. This portion is covered in a layer of metal sheeting that closes the user off from the surrounding city. Where this wall meets the administrative block, the sheeting is peeled back and the admin block pushes into the concourse space, with repeated windows which overlook the space below.

Figure 44: Plan and section comparison of the Whites Only Concourse and the Good Hope Concourse (Non-White Main Line Concourse) (own image, 2017).

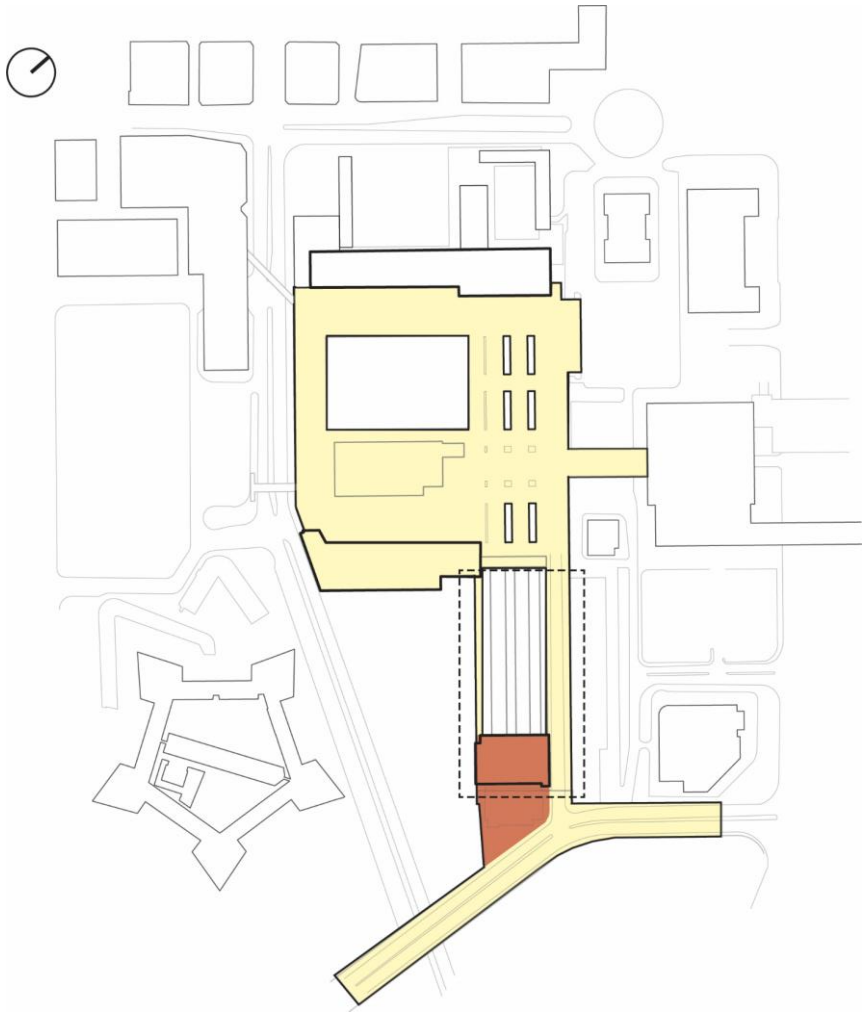


Figure 45: plan of Train Station Precinct (NTS. Own image, 2017). Yellow indicates the flyover level of the precinct, red the site. Dotted indicates portion of disused platforms on precinct.

Site conditions

The relation of the site to the rest of the train station precinct is a key design consideration. On the ground plane, significant portions of the platforms have been made redundant by the disuse of the Good Hope Concourse building (see fig 45). The train lines that run beneath the building (platforms 18-23) are dedicated to long distance rail and are used sporadically throughout the day (roughly one train every two hours along one of the six routes train tracks, with more intense activity at night and early in the morning). Thus, the train lines beneath the building are active, but the platform space is not. The platforms present an opportunity for the design intervention.

The site of the project sits approximately 220m away from the taxi rank, which is also at the flyover level. In this way, the site is physically connected to the main portion of the station on both flyover and platform level, however the area indicated in figure 45 is redundant and therefore disconnected in terms of use.

At the flyover level, the site is comprised of two main components, the derelict building and the empty parking lot in front of it. The site has been mostly unoccupied since the end of apartheid in 1994; it has hosted a few intermittent functions, from event space to a nightclub for a short period. The site is currently fenced off, the parking lot overgrown and the existing building in a state of disrepair.

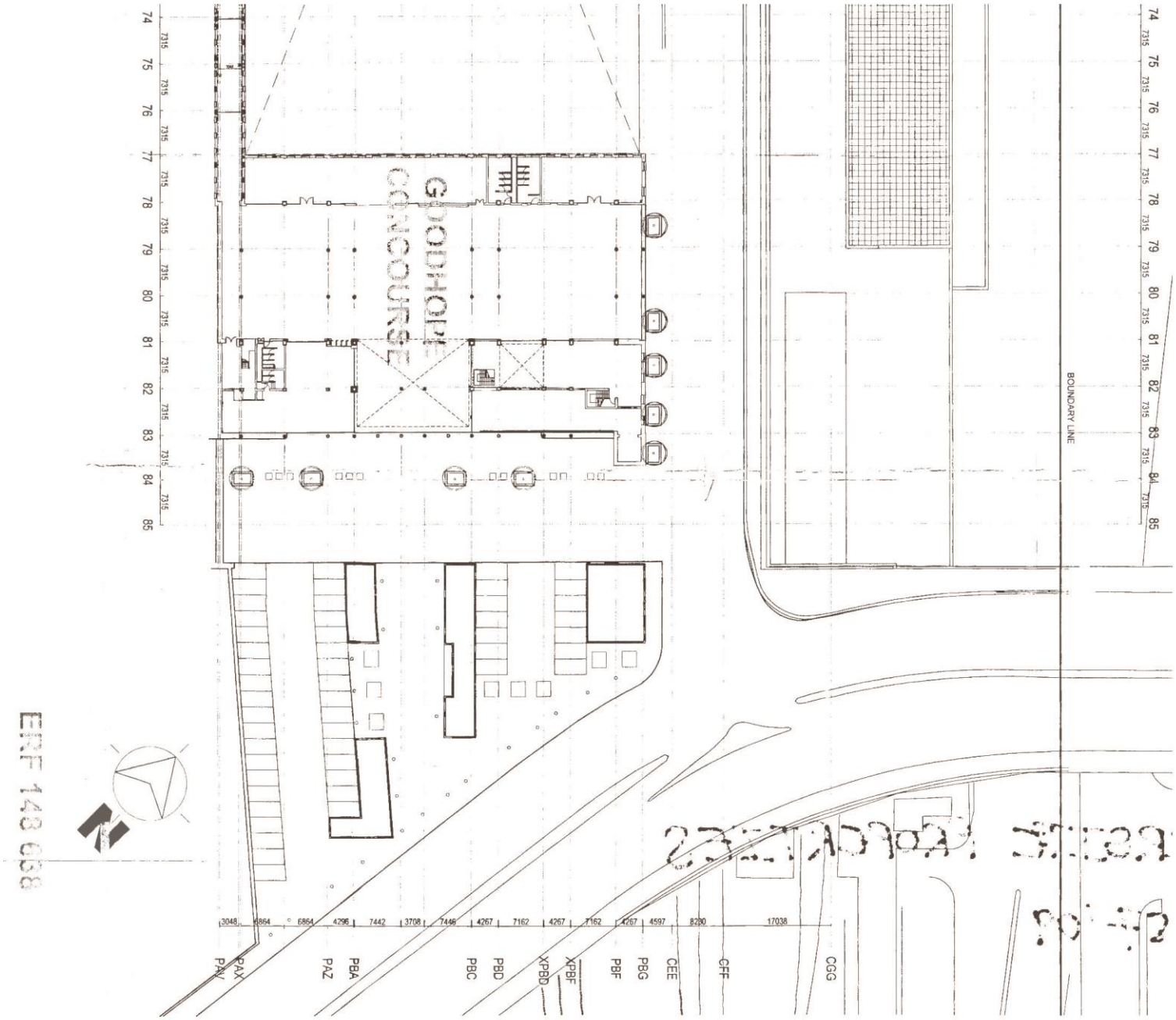


Figure 46 Site Plan 1:1000, flyover level. From Cape Town City Council (date unknown)

Figure 47 (top): Pedestrian experience of Christiaan Barnard Drive from District Six side of bridge. (own image, 2017)
Figure 48 (bottom): Pedestrian experience of Station Street looking towards existing building.

Street conditions

The Christiaan Barnard Drive armature heavily favours vehicular movement in terms of its spatial allocation and user experience. The bridge has seven vehicular lanes in total, four in the direction of District Six and three in the direction of the Culemborg district. Both sides of the bridge offer a three-metre wide pedestrian walkway. Station Road is reserved for taxis and terminates at the taxi rank above the main platforms of the station. Here, the pedestrian walkway narrows to two metres wide. Both movement routes favour the vehicle over the pedestrian; however, the increased volume of vehicular activity make the Christiaan Barnard Drive the more alienating experience.

The scale and length of the routes is a major factor in terms of the experience of the spaces. In this regard, both pedestrian routes have no engagement with active street edge (buildings or spaces) for the majority of their length. This deepens the pedestrian alienation typical of the Foreshore district.

Thresholds

The existing building defines thresholds in a rather harsh manner. By setting clear and definitive boundaries between the building and the city, the building actively dissociates itself from its surroundings and limits the interaction between the interior programme and the urban life around it. While this delineation allows for a building that is easier to control, it disregards threshold spaces and holding spaces that are significant in the social life of the urban environment.

Figure 49: Relation of building to Station road. Note the hard edge with no engagement between inside and outside. (own image, 2017)
Figure 50: Relation of building to parking lot. Again, the line between interior and exterior is strongly defined. (own image, 2017)

Figure 51: (top) Disused existing site (own image, 2017). Note the greenery.
Figure 52 (bottom): Disused site looking towards Devil's Peak (own image, 2017).

Derelict state of building

The 23 years of disuse is becoming increasingly legible on the façade. In a Heritage Impact Assessment for the precinct of the Cape Town Train Station (2013), Claire Abrahamse describes the existing building and its state:

> *"Double storey concrete frame structure with terrazzo cladding in horizontal panels and with decorative cladding patterns throughout. Folded conc. roof, supported on large, splayed, red terrazzo clad columns with wider capitols and with clerestory lighting set behind. The structure is marked by small, square windows with accentuated concrete lintels and sills and with the typical mullion detailing seen throughout. It has large expanses of solid, decorative cladding. Corner "tower" element has "Springbok Chariot" emblem in metalwork. The building is disused and has been damaged, with broken windows, roof tiles missing, issues with leaks etc."*
>
> -Claire Abrahamse, 2013

Since the time of this report, the condition of the building has only worsened. All of the windowpanes have been broken out, and some of the terrazzo tiles, which form the cladding for the building, have been cracked or removed entirely. The activity of the city has also acted upon the building, with dirt and nondescript advertisements plastered onto the street façade.

The site sees a number of vagrants who utilise the building informally. The building's proximity to the active train lines means that it is well located to suit their needs for connectivity. This transient group of occupants has acted on the building, too, boarding up some windows and occupying the derelict site.

Figure 53: Derelict state of building. (own image, 2017). Note the boarded windows.

Figure 54 (top): Overall form of building (own image, 2017). Rectilinear in form.
Figure 55 (bottom): Wide, rectilinear form of existing building (own image, 2017).

Key formal elements

The overall form

The shape of the building leads to a reading of the form as deceptively small. The primary form of the building is a box, some 70m by 45m wide and 10m high, reading as a large, rectilinear form atop the flyover level. Repetition of formal elements on the front façade (columns and windows) lend themselves to a civic reading of the building. The front right corner is articulated with a box form that pronounces its verticality, contrasting the form of the majority of the building. The back wing of the building that faces towards the rest of the train station reads as a long, smaller box (refer fig 55) connected to the primary volume that is the concourse space.

The roof

The folded concrete roof floats above the main concourse space held just over a metre above the walls beneath by fluted concrete columns, allowing light to enter the space below. The folded planes created by the shape of the roof catch light entering the space and reflect it down to the spaces below. The structure of the roof is a series of beams that run between the columns. Claire Abrahamse notes that the folded concrete roof is of high architectural importance to the building (Abrahamse 2013).

Figure 56: Roof form as experienced from inside the main concourse space. (own image, 2017)

Figure 57: Existing lift block. (own image, 2017)

Materiality

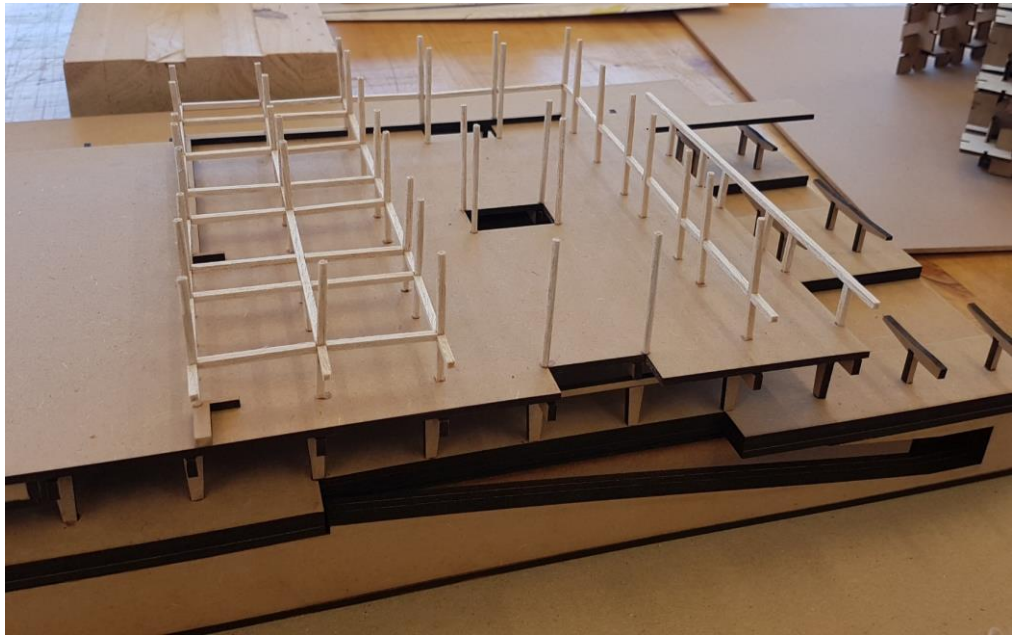
The cladding

The primary material that envelopes the building is terrazzo cladding. The detailing and panel sizes vary, but the primary composition makes use of alternating horizontal bands of 30cm and 10cm panels. This cladding is used predominantly on the exterior and contributes to the civic nature of the building as a hard wearing, durable finish.

The tunnel

An existing service tunnel runs between the three platforms beneath the ground level closest to the Culemborg site. Th tunnel is approximately 6 metres in width and was used as a luggage and goods service tunnel. The tunnel is currently locked up and disused.

Figure 58: Ramp to tunnel beneath platform level. (own image, 2017)



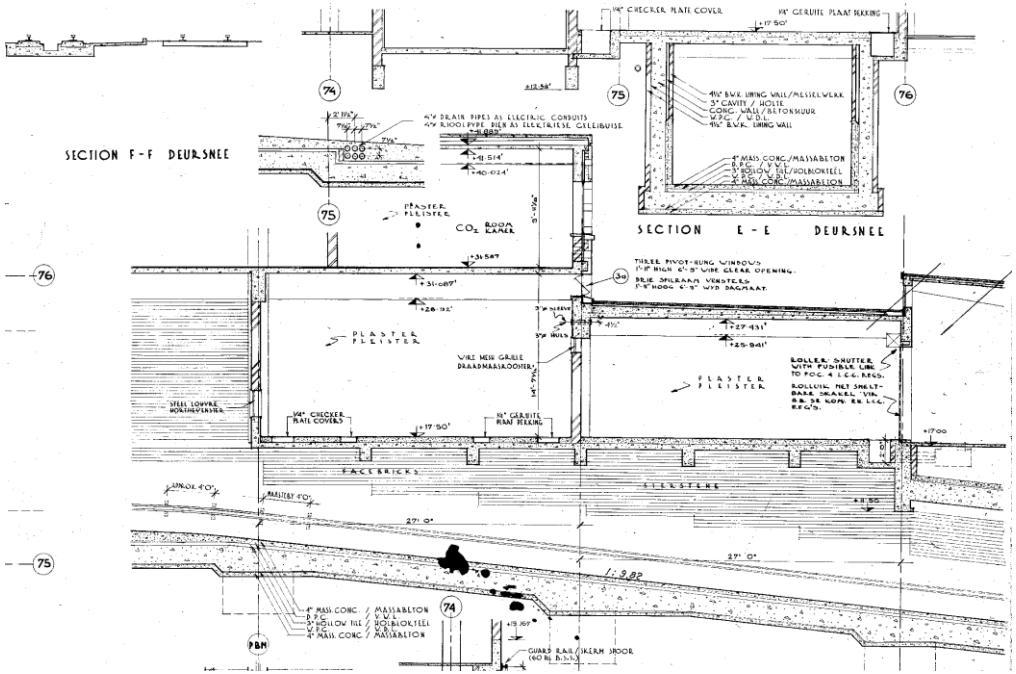


Figure 59 (top): Tunnel beneath platform level (own image, 2017).
Figure 60 (bottom): Detailing of tunnel system (1967)

Internal Finishes

The internal finishes of the building are predominantly hard wearing materials common to civic buildings – concrete columns, plastered or tiled walls and tiled flooring, all in darker shades of grey or brown to minimise the visibility of wear and tear upon them (refer figure 61). The brickwork of some internal walls has become visible behind the plaster which used to cover it through the degradation of the building. The main concourse space has sheet metal cladding wrapped around the internal space from the first to second floor levels.

Figure 61: Internal finishes inside main concourse space (own image, 2017). Note the hard tiled and clad surfaces of the existing.

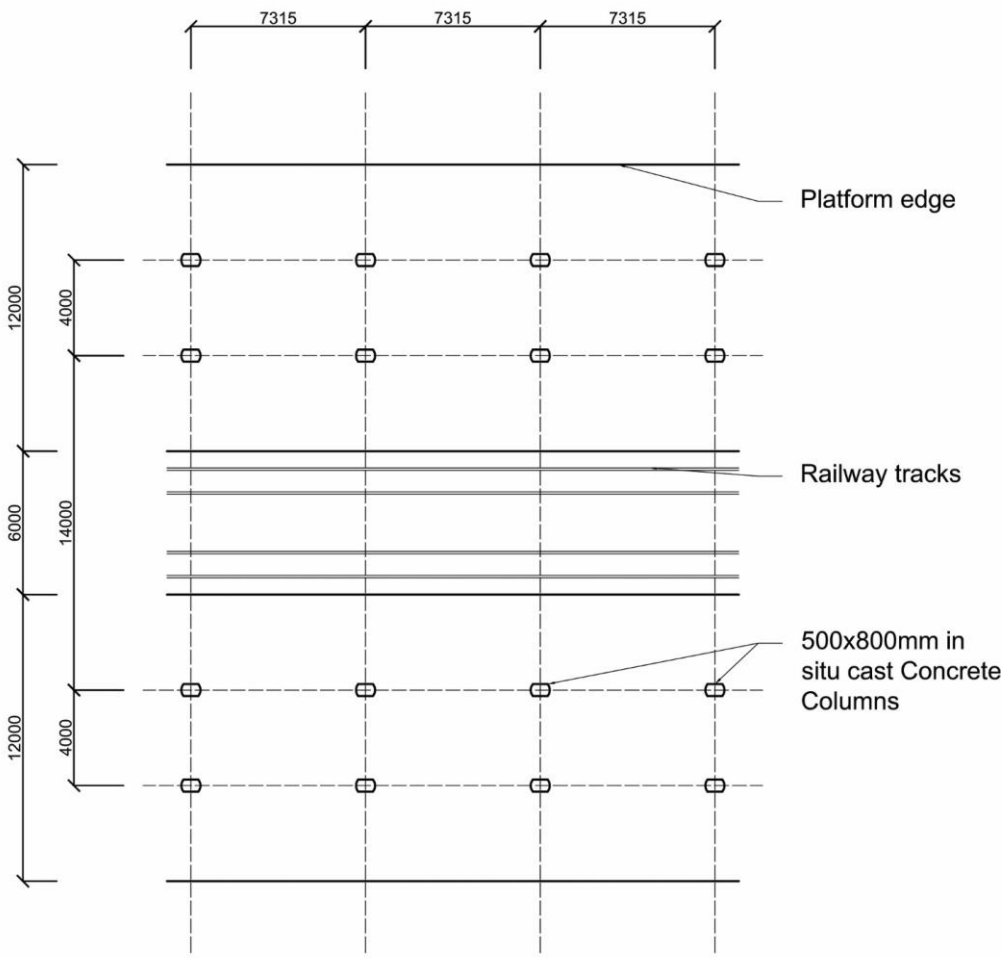


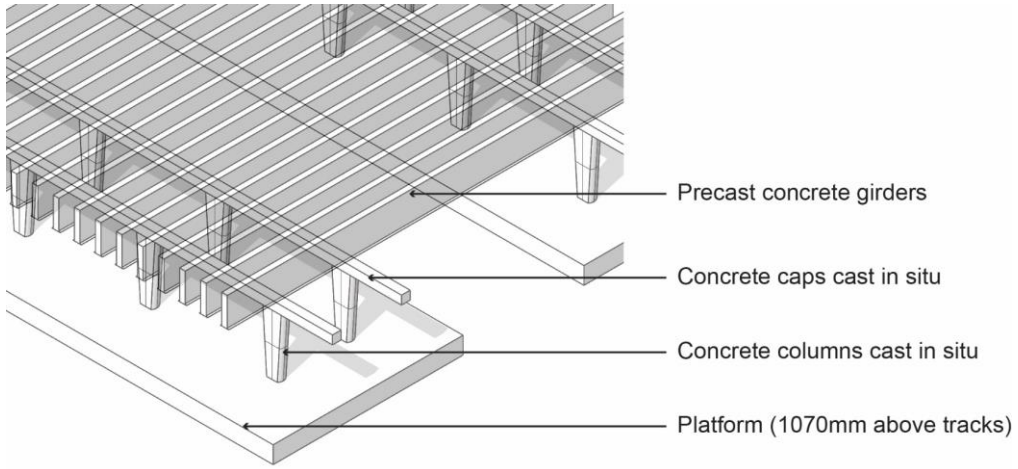
Figure 62: Plan view of column grid on platforms, NTS (own image). Drawn up from the documentation provided from the Cape Town City Council..

Structure

The structure of the existing is a relatively simple in terms of its materiality and rectilinear nature. The primary frame is reinforced concrete beam and column type. The platforms and train lines that run beneath the building required clearance in order for the station to operate properly, and as such the structure of the building responds to this established grid with long spans to give space to the programme below.

The primary columns run in pairs aligning with the centre of the four platforms. These columns continue into the building above.

The flyover level of the site forms the ground storey in the building. The girders and slab that form this are much deeper than a normal slab at 1670mm and 330mm deep respectively (refer fig 64).



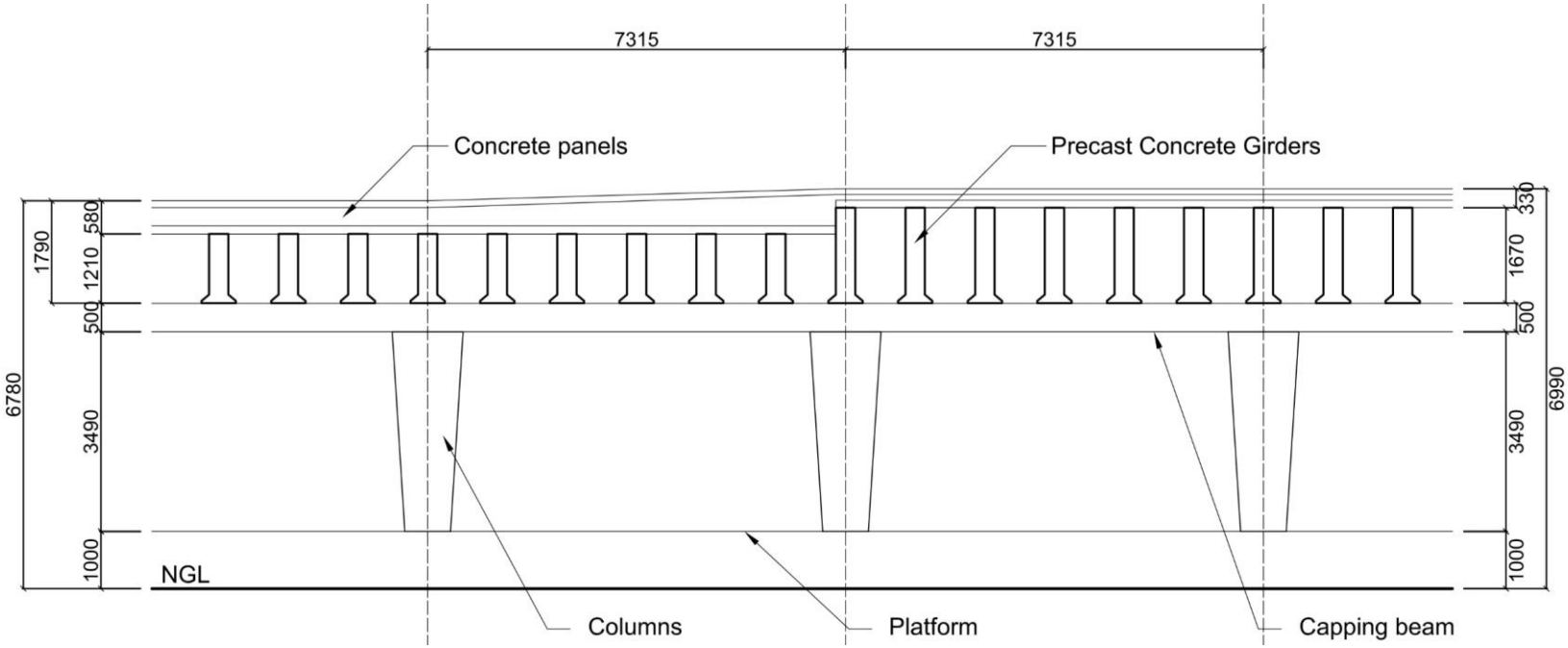


Figure 63: Axonometric view of structural system (own image, 2017)
Figure 64: Section cut through the existing structure at building edge (own image, 2017).

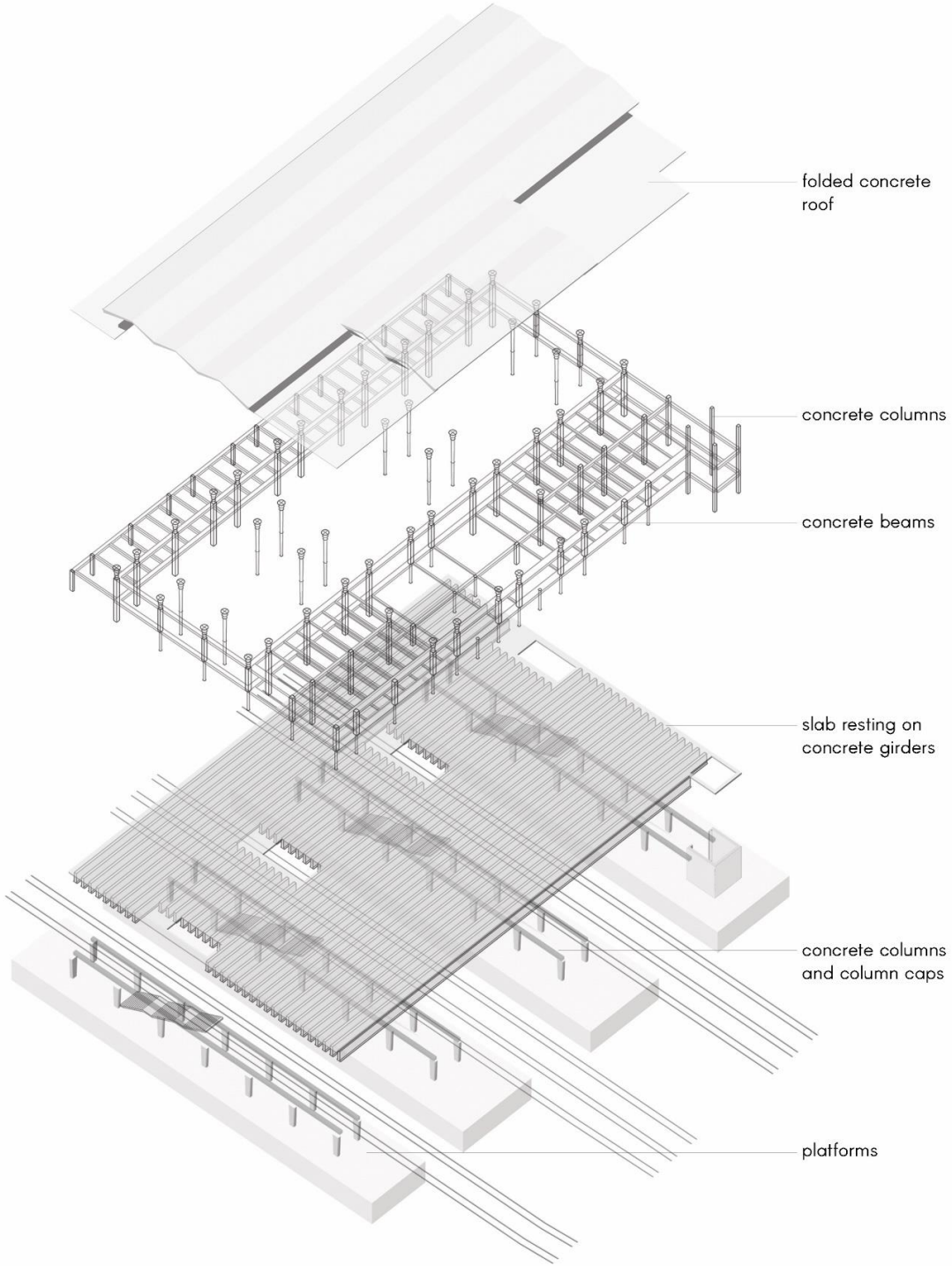
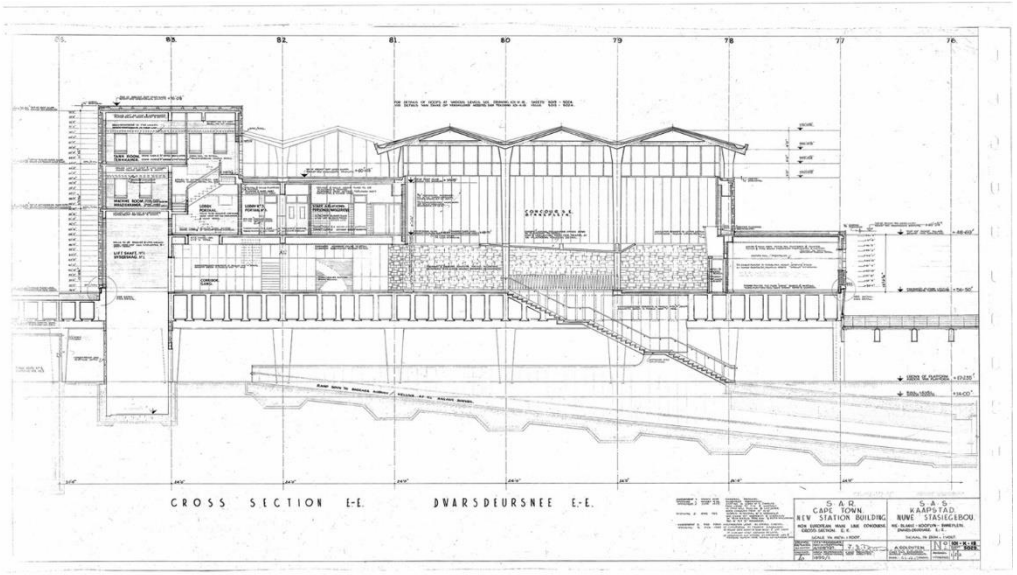


Figure 65: Structural axonometric (own image, 2017)



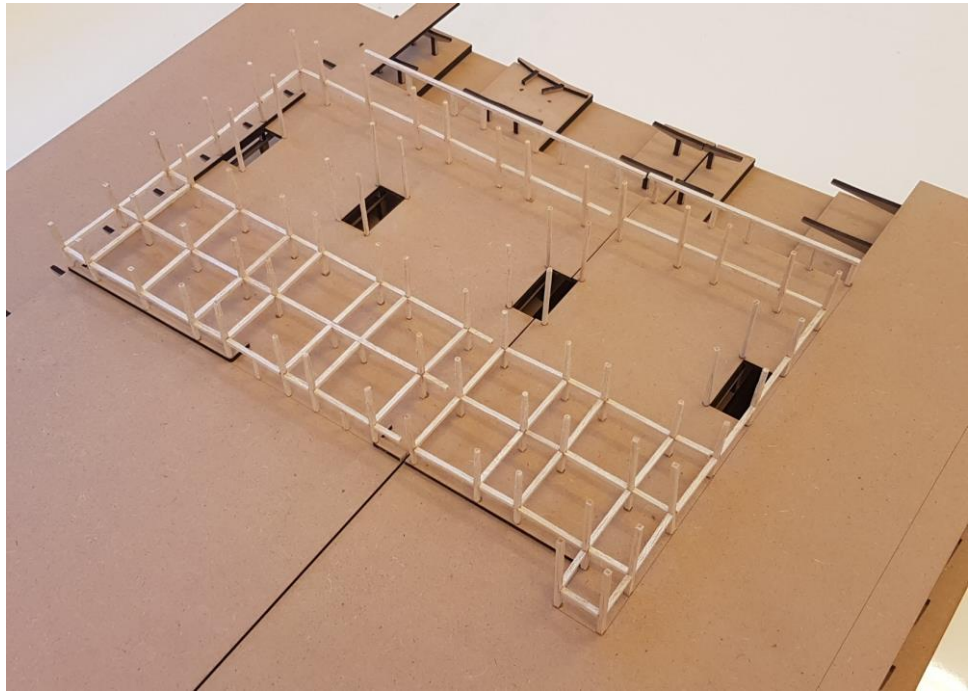


Figure 66 (top right): Section through existing building (1967)
Figure 67 (bottom right): Structural model of existing (own model, 2017)

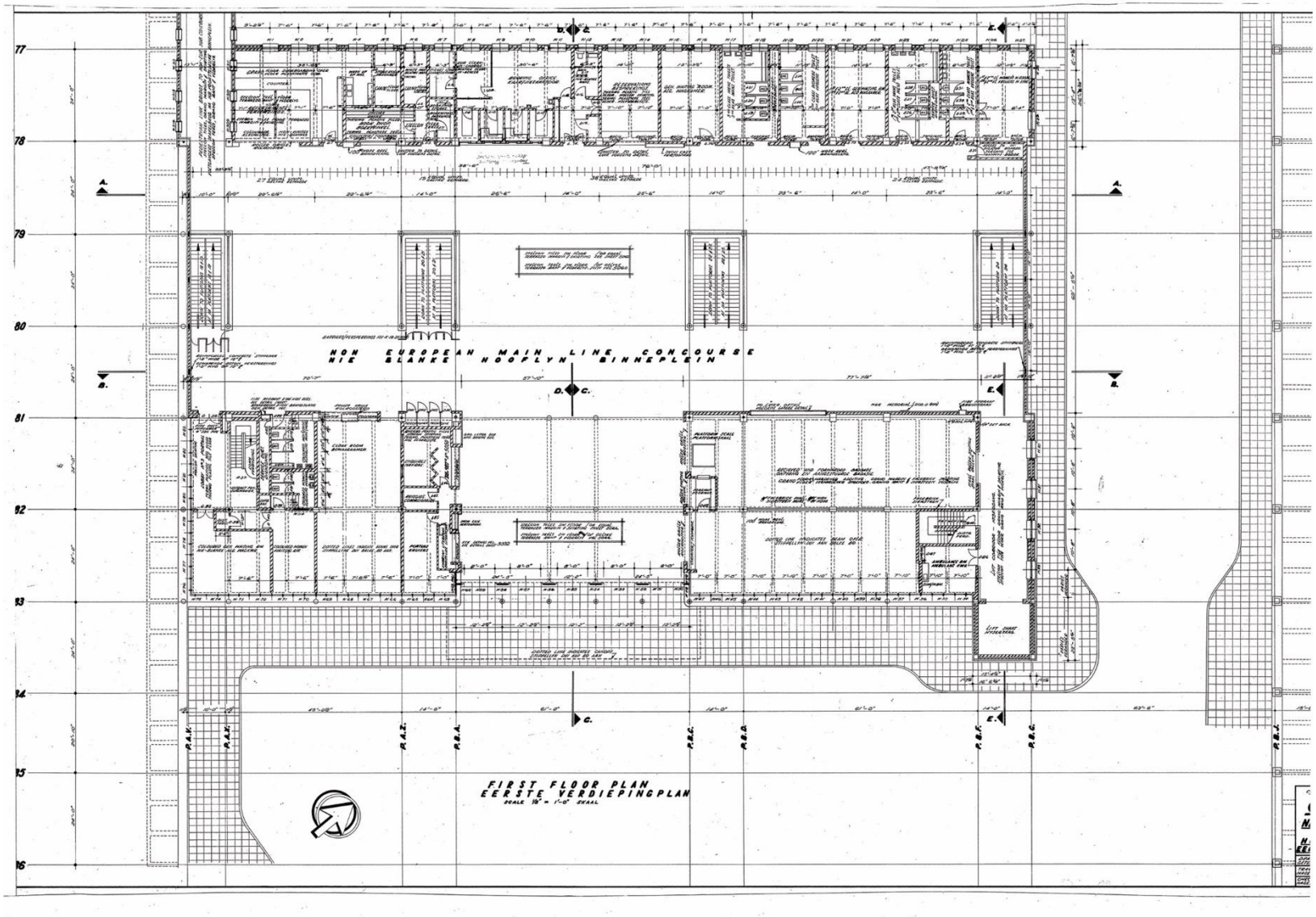


Figure 68: Flyover level plan (1967)

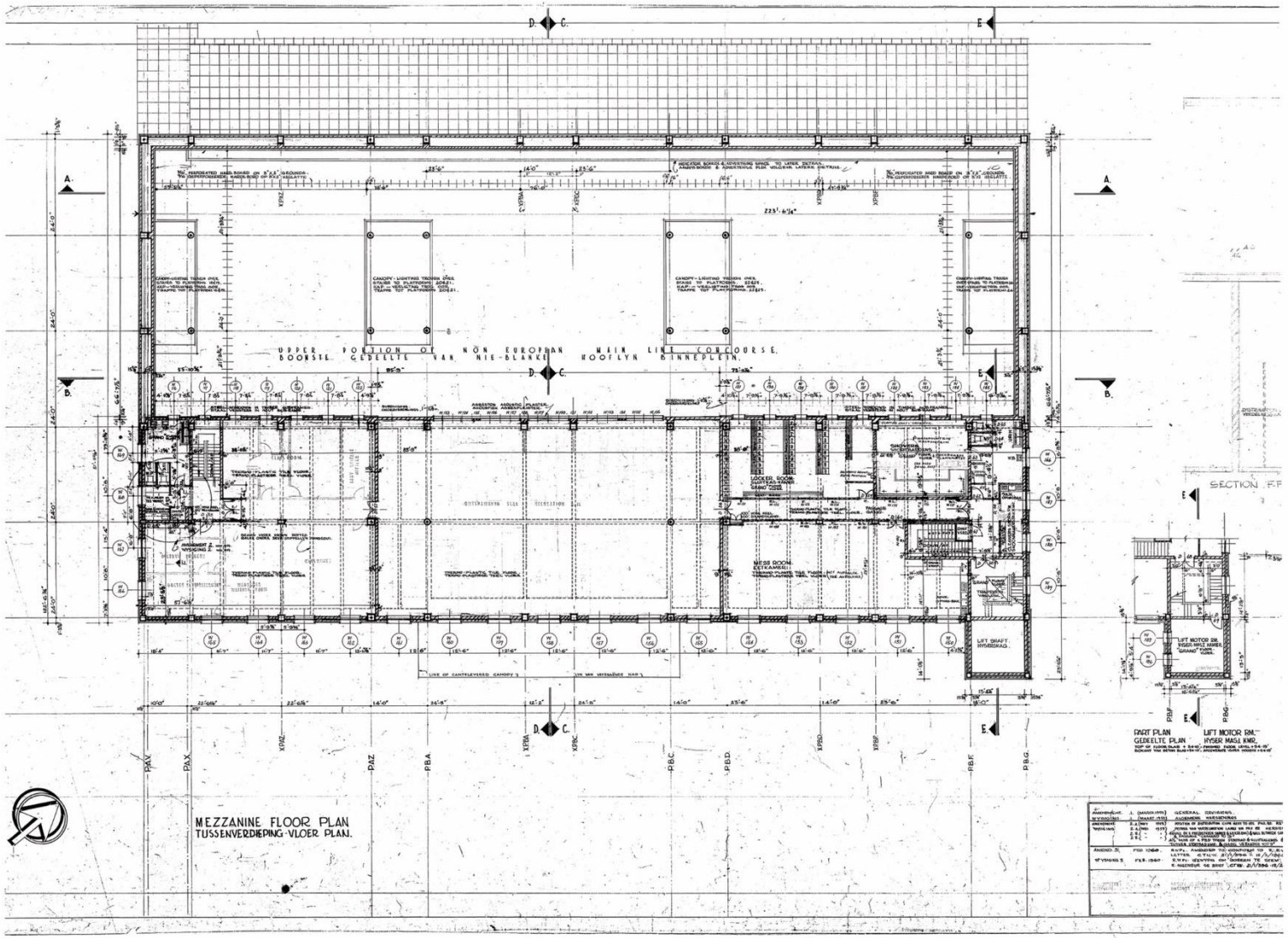


Figure 69: Mezzanine level plan (1967)

Figure 70 (top): Main concourse space (own image, 2017)
Figure 71 (bottom): Main concourse space from entrance (own image, 2017)

Key Spaces of the Existing Building

In considering the key moments in the building, the main concourse space is of high significance.

The space is articulated with a folded concrete roof that appears to float above the volume of the space beneath it, allowing indirect light into the concourse space. A limited amount of light enters the space as illustrated by the photographs. The double storey walls that enclose the space separate the occupant from the city outside with a glaring lack of windows or punctures, a deliberate move which is disorienting to the users of the building. Columns in rectangular sets of four run across the centre of the concourse space, articulating the staircases which run to the platforms below. This loosely divides the concourse space into three separate areas.

During its years of operation, the space was activated by the adjoining rooms that provided services to the public necessary for a concourse – ticket sales, washrooms, luggage space, waiting rooms etc. These rooms now remain, disused and boarded up, forming a hard edge to the concourse space. This wing is articulated on the rear façade of the building with a line of repeated square windows overlooking the platforms below.

The administrative block on the mezzanine level stretches the length of the building, with windows into the main concourse space below. This portion of the building has a range of spaces of varying sizes. The central third of the plan is a large open space dedicated to community use, flanked by smaller rooms dedicated to the administration of the building.

The space beneath the building is extremely quiet and isolated from the rest of the city. The volume of the space is held by the deep concrete girders which repeat at metre intervals perpendicular to the platforms. The quality of the light is valued in how it gives character to the space. Indirect light enters the deep space from the surrounding context, catching on the bottom of the girders and emphasising the heavy structure's presence in the space. The platforms create a series of tunnel forms, which continue out beyond the flyover into the daylight beyond. This forms a contrast between the deep, poorly lit space beneath the building and the brightly lit spaces to which ones eye is drawn.

Figure 72 (top): Platform level (own image, 2017)
Figure 73 (bottom): Structure on platform level (own image, 2017)
.

Figure 74 (top): Entrance looking towards parcels delivery (own image, 2017).
Figure 75 (middle): Internal concourse space (own image, 2017).
Figure 76 (bottom): Arrival space (own image, 2017).

Conclusion

The approach to documenting the found building provides for a valuable set of lenses to the design intervention. Consideration for the building's history and social memory provides for a deeper understanding of the social context of the site and the nature of the architecture. Through an understanding of different technical aspects of the building as well as a documentation of the spatial experience, an informed design may be achieved.

Figure 77: Existing entrance (own image, 2017). Note the derelict nature of the existing.

PART FIVE: PROGRAMME

A satellite design campus

The intended programme for the site comes from a combination of urban and architectural reasoning, as well as starting an active dialogue with the history and memory of the Good Hope Concourse building.

At an urban level, the chosen programme is a satellite campus of the Cape Peninsula University of Technology, in order to form an urban link to the main campus located in District Six, some 1000m away. The design of the site intends to form an urban node for the intended pedestrian network along the Christiaan Barnard Drive towards the Culemborg district. The site intends to attract people from both District Six and the Culemborg district in order to foster an urban connection between the disparate sides of the city. Given the connectivity of the site to various public transport routes, the satellite campus will be easily accessible to the public, as well as connecting at a pedestrian level to the main campus.

Given the findings of the Found Building section of this document, and taking the urban intention of a satellite campus into consideration, the project focuses on the Non-White Main Line Concourse building and the spatial and thematic potential to host a design space. This decision is motivated at the scale of the building and series of spaces it provides.

The programmatic intention is to bring the Industrial Design programme from this campus as well as the design programmes currently located in the Media City building (Interior Design, Architectural Technology) to form a design hub on the site. At the scale of urban consideration, the intention is to create a series of buildings that form a campus around the central public space (the public node).

Programme	**1st year**	**2nd year**	**3rd year**	**4th year**	**Total**
BTech: Industrial Design	63	48	46	20	177
BTech: Architectural Technology	94	82	73	-	249
BTech: Interior Design	35	28	23	-	86
					512

Figure 78: Student number estimates per design programme, CPUT, (own image 2017).

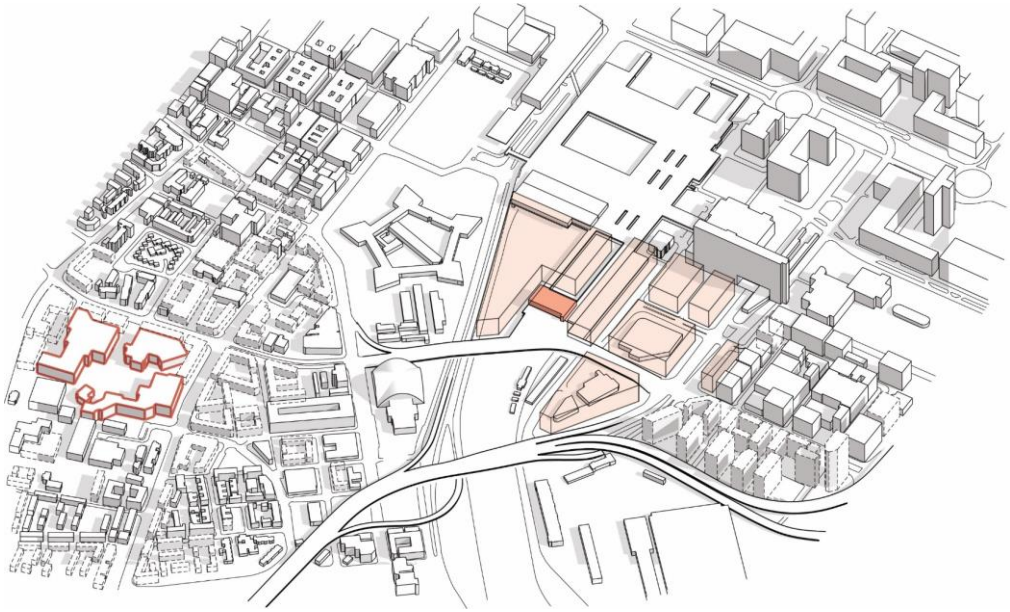


Figure 79: Proposed urban link (own image, 2017)

The programmatic intention of the design is to adaptively reuse the Good Hope Concourse Building as a design school. The building will be able to house the Industrial Design component of the design campus as an initial stage of the project. The amenities that the building intends to provide will service the larger campus when other design programs are brought onto the site.

At a thematic level, the chosen programme for the site talks to the intensely negative memory of the space by contrasting the building with an educational programme, which speaks to the upliftment of people. By locating the programme within a historically stigmatised space, the project talks to themes of reconciliation. The negative history of the space is contrasted with a programme linked to a brighter future. The design intention is to allow the public to engage with the spaces of memory that the building holds, and give new life to the range of spaces of the building.

The architecture of the existing building carried out its programme of a concourse in a domineering and segregated manner. The design intervenes to use the existing spaces for a new programme that will be able to change the way the spaces relate to one another to an order of connectivity. Through this, new life can be brought into the site that moves from an order of dissociation to one of activity and relation.

This section explores a range of principles that guide the architectural intervention. The principles are gleaned from a framing of how to engage with spaces of memory as established through this paper. The design principles are thus in response to the historic context of the site, with a consideration of the changes facing the surrounding urban landscape in the future. The *Found Building* chapter establishes a reading of the existing building from a range of different approaches, which guide the design intention for the project. The design principles come as a response to this analysis.

The primary design intention is to allow the building to hold the memory of its past life, while giving it a new life as an active piece of the city. The intention is to allow the primary spaces of memory to remain legible in the new design, encouraging the public to interact with these spaces where possible. Even as the memories that the building holds are painful, the intention is to preserve the memories that the site holds as a means of engaging with past ills and stimulating growth through societal reflection. The design activates the space of memory with new architecture in a manner that creates a dialogue between the existing structure, its spatial and material memory, and the new programme with its own spatial order.

At an urban level, the intention is to foster spatial connections with the surrounding urban context through reactivating the public space of the site.

The memory that the building holds will be maintained and situated in a dialogue with the new activity of the site. This juxtaposition of old and new will allow for a simultaneity within the reading of the architecture of the existing and the intervention.

This section explores how these design intentions can be translated into architectural design principles.

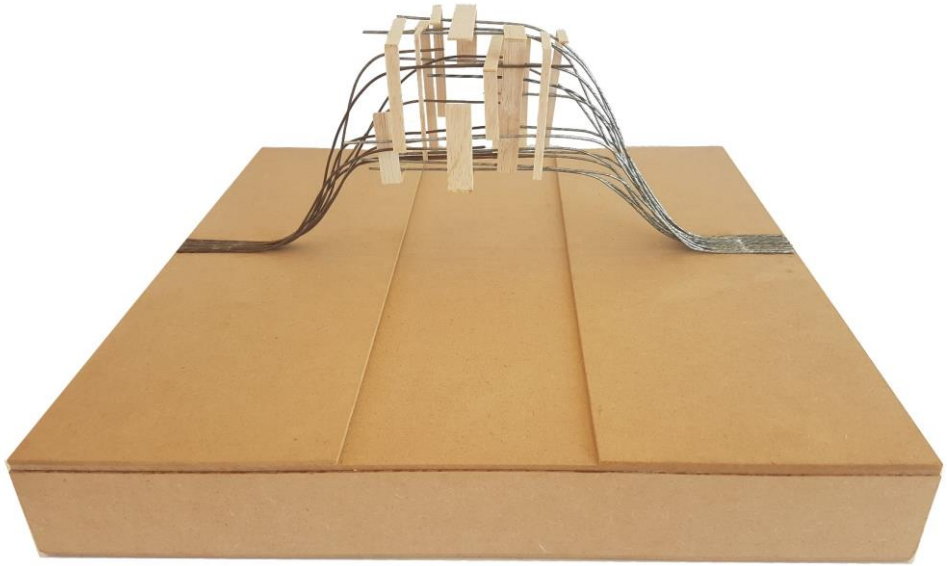
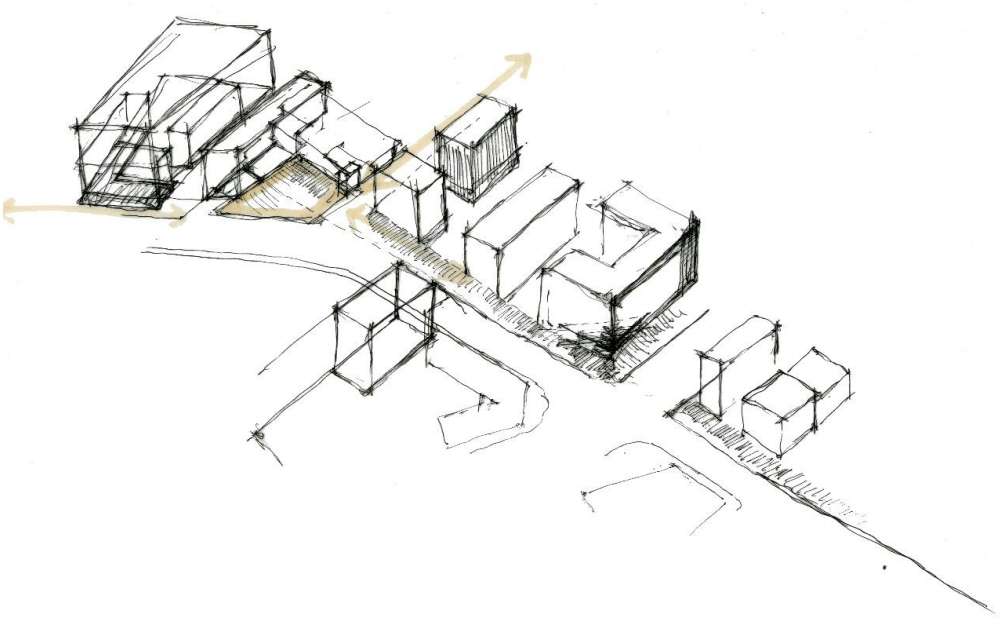


Figure 80: Conceptual model (own, 2017). Intention of fusing armatures and acting on an urban level.

PART SIX: DESIGN PRINCIPLES



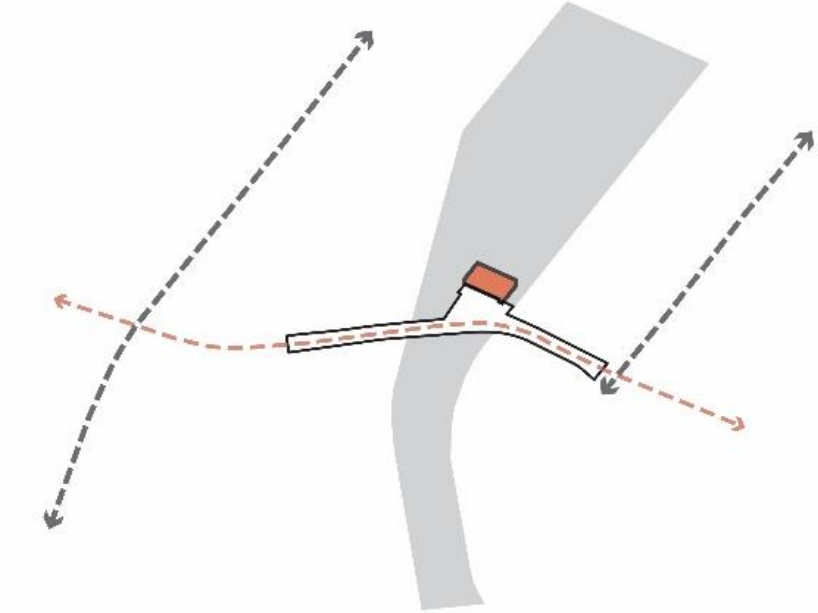


Figure 81 (top): Sketch of urban node (own image, 2017).
Figure 82: (bottom): Movement routes around site (own image, 2017).

Design Principle: Urban Connectivity

In response to the existing and future urban conditions as established in the *Urban Context* section, the design intention is to create a node of activity on the site where the adaptive reuse of the Goodhope Concourse building is the catalyst of for the precinct. The urban intention is for the site to act initially as a public node located at the shift in grid between the Culemborg and District Six sites. The node forms a key link into the Culemborg site along the envisioned pedestrian armature of Christiaan Barnard Drive as an initial stage of the project. At a later stage, when development over the train lines begin, the architecture along the pedestrian link to the CPUT main campus will reinforce the pedestrian armature in this direction.

Figure 83: Conceptual pedestrian armature into Culemborg District, culminating at site node (own image, 2017).

Design Principle: Thresholds

The *Thresholds* subsection of the *Found Building* analysis notes the disconnected relation between the interior of the building and the site around it. The design intention is to undo this, providing social spaces that mediate between the building and the site. The public space of the existing parking lot is considered an urban threshold, too, and is treated through the design as a pedestrian social space that is reinforced and held by the surrounding design campus.

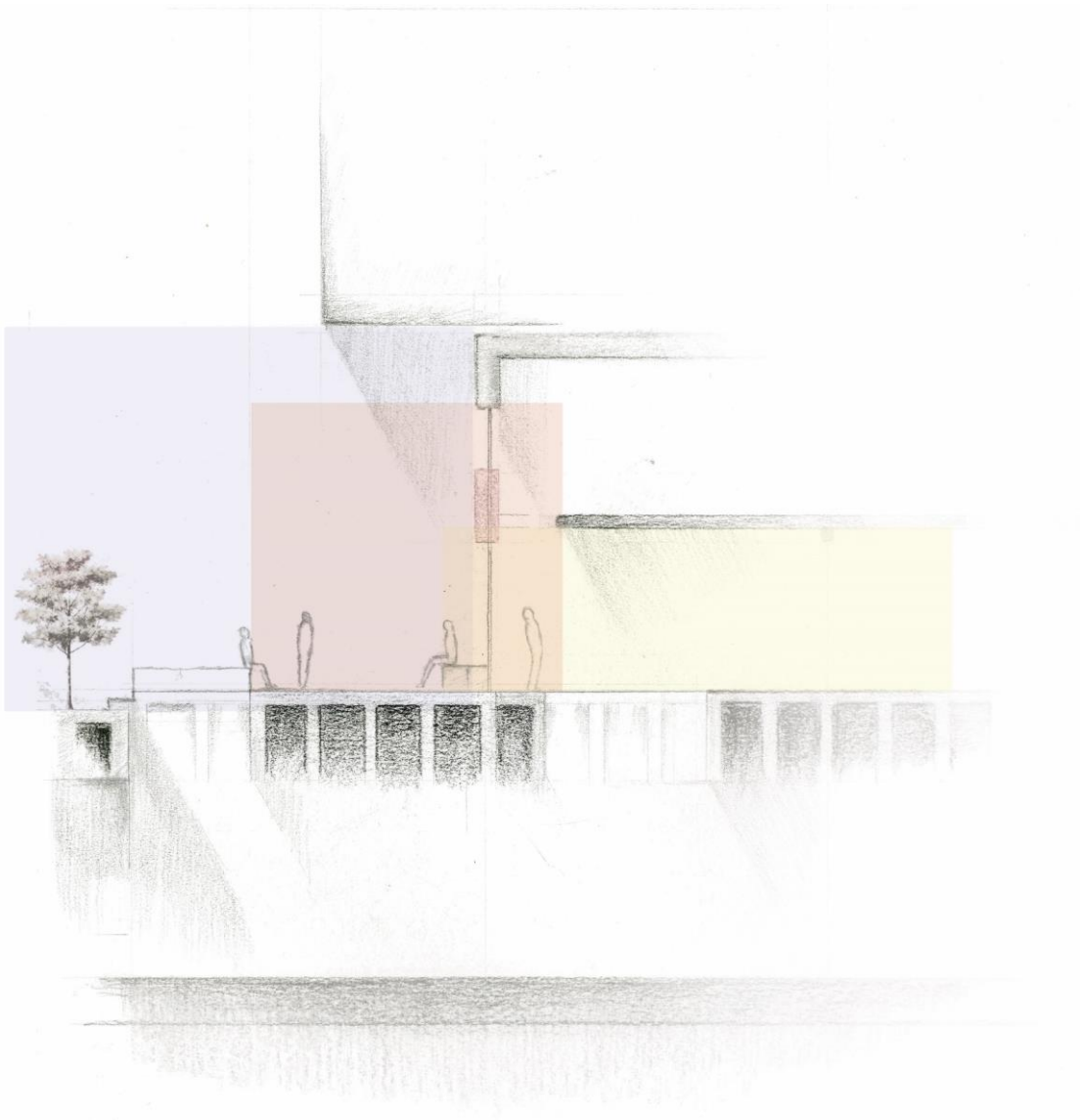


Figure 84: Threshold conditions (own image, 2017).. Blue – external condition, red – threshold condition – yellow, internal condition.

Design Principle: The symbolism of the existing building

The existing building is contentious and has accrued a strong apartheid symbolism (refer to *The Building as a Tool of Apartheid*). The design intention is to use this stigma as an opportunity for transforming the site through the new public programme and architecture. By creating a space of education and public engagement in the site of historical segregation, the old negative symbolism of the building is transformed. The design seeks to maintain the memory that the building holds through the identification of key spaces of memory, namely the main concourse space, and allowing the space to continue to be read as the concourse, by pronouncing the intervention as a new layer into the space.

The strong rectilinear form of the existing lends a civic reading to the building. The nature of this architecture talks to the negative symbolism the building has accrued as a piece of governmental infrastructure during apartheid. Here, the overall form is to be contested in the design, creating a reading of the building as having been transformed.

While the building holds significant negative social memory for society, some aspects of the architecture are of higher value than others. The desire to maintain some specific aspects of the existing aligns itself with the intention to hold the memory of the site through the design intervention.

A key aspect to be considered is the folded concrete roof specifically above the main concourse space, where the roof is a primary formal element, inseparable from the experience of the space.

Figure 85: Proposed addition to form (own image, 2017). The order of the movement axes is carried into the façade.

Design Principle: linking spaces

A primary design principle presents itself through the analysis of the building's historic treatment of the user. Previously, the architecture reinforced a separated hierarchical order (refer to *The Building as a Tool of Apartheid* section) which holds the programmatic elements apart on separate horizontal planes, reinforcing a hierarchy that dominates the user. The original building can therefore be said to use levels to separate its users from one another. The imperative of the intervention is to subvert this order, to link the previously disconnected spaces, encouraging the occupants to interact with one another. This move will encourage a dialogue between the spaces, which suits the needs of the new programme, too. The design response is to link the existing volumes to one another in a series of cascading volumes.

To reinforce this, vertical circulation is located on this new axis to encourage the relation between the volumes along the axis that link through the building and integrate the spaces with each other. In so doing, the relationship between the spaces is fundamentally changed from one of separation to linkage.

The selected programme suits this theme of linkage too. Design spaces are suited to orders of connectivity whereby users are able to engage other design thinkers, consult with them on their work and learn from one another.

The transformation of the architectural order of the building from one of separation to one of linkage is achieved through several strategies. The axes of linkage connect to the wide concourse staircases, continuing their trajectory upward to the design school spaces above. The intent is to create a series of social spaces along the route to maintain visual connectivity between users of the building. The new social spaces find desirable proximity to circulation along the axes, and strong visual relation to the other spaces along the cascade.

In this way, the approach to circulation in the building is to achieve the appropriate linking and spatial relation between aspects of the programme. The new circulation routes establish a link to the old, and in so doing are able to transform the order of the building from one of segregation to that of integration.

Figure 86: Conceptual section along linking axis (own image, 2017). Visual connections to be maintained along the axes.

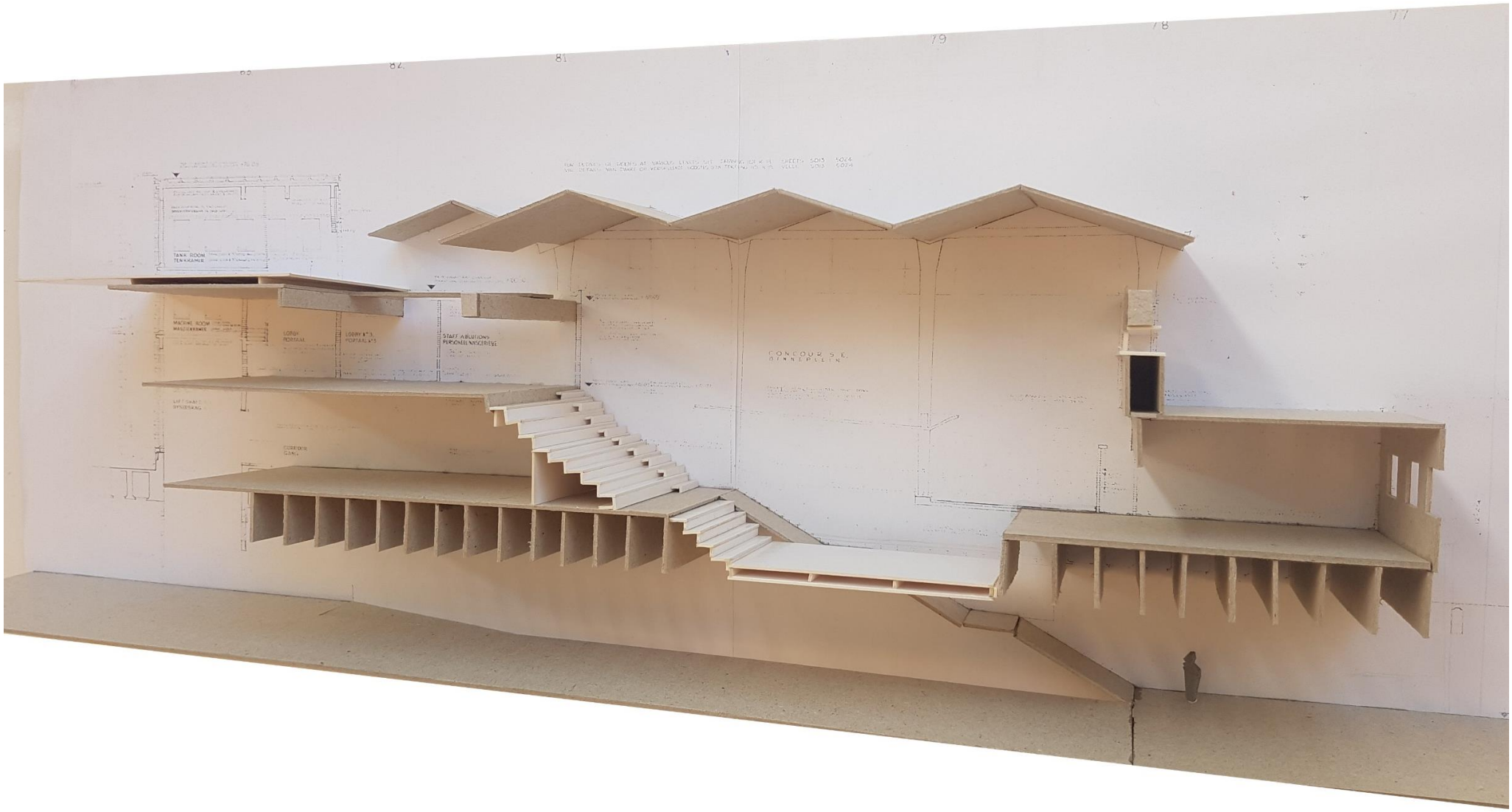
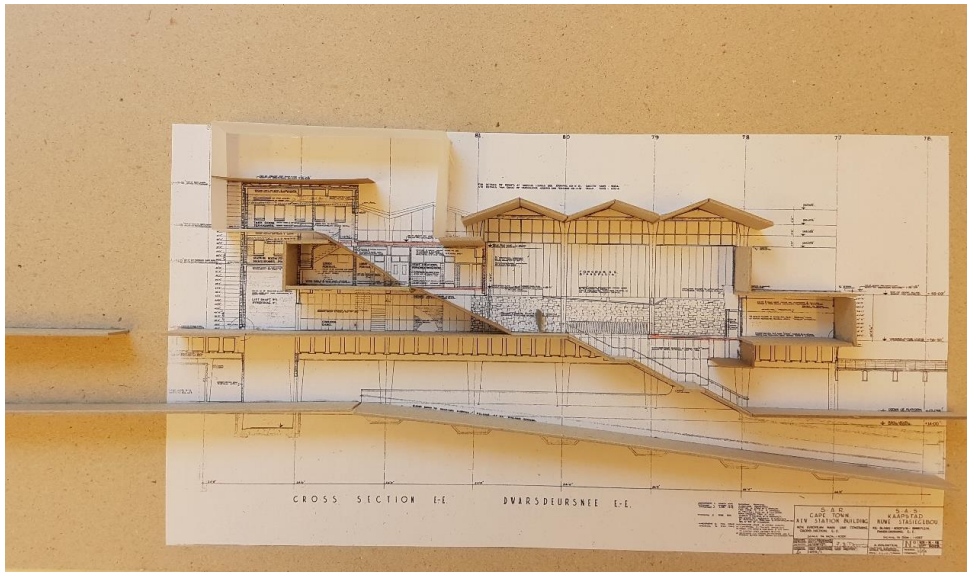
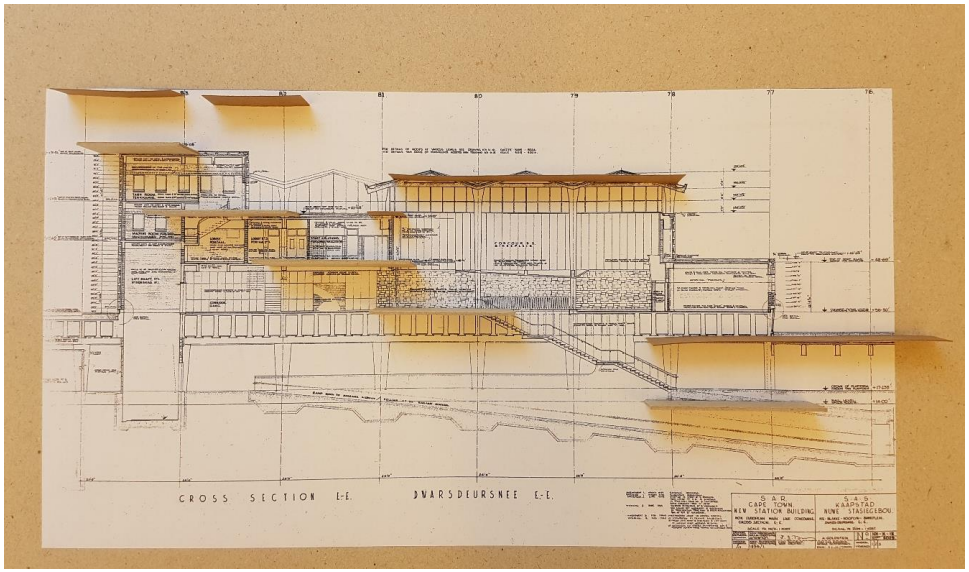


Figure 87: Sectional model of intended cascading auditorium (own image, 2017). White indicates new , grey existing.



Development of the cascading spatial linkage idea, attempting to link all the elements of the building together. (own image)



The volumes along the linking cascade (own image).

Through a careful reading of the existing spaces, the proposed programmatic organisation intends to activate the primary concourse space with public activity while maintaining the character and therefore memory that the space holds. The architecture therefore needs to find a balance between intervening too little and changing too much of this space. In the case that too little is done to the space, the programme of the new will not be sufficiently accommodated. If the existing is erased extensively, the character and memory will be lost. By carefully programming the existing spaces of significant memory, architectural changes can be limited to allow for the character of the existing to be maintained.

A further space of significant memory is the platform level below the building. While this space does not have the same symbolic meaning as the existing building, the character of the space is important to the design and suits the intended workshop programme. Here the same principle of pronouncing new from old will be employed to allow for the character of the space to be maintained. Through clearly delineating new from old, the architecture of the old will maintain legibility and spatial character, preserving the memory it holds. The main concourse space will be held as part of the public realm, where it is overseen by the design school that uses it. By allowing for a range of programs to occur in the space, the site becomes a host for public engagement, activated by the surrounding programme.

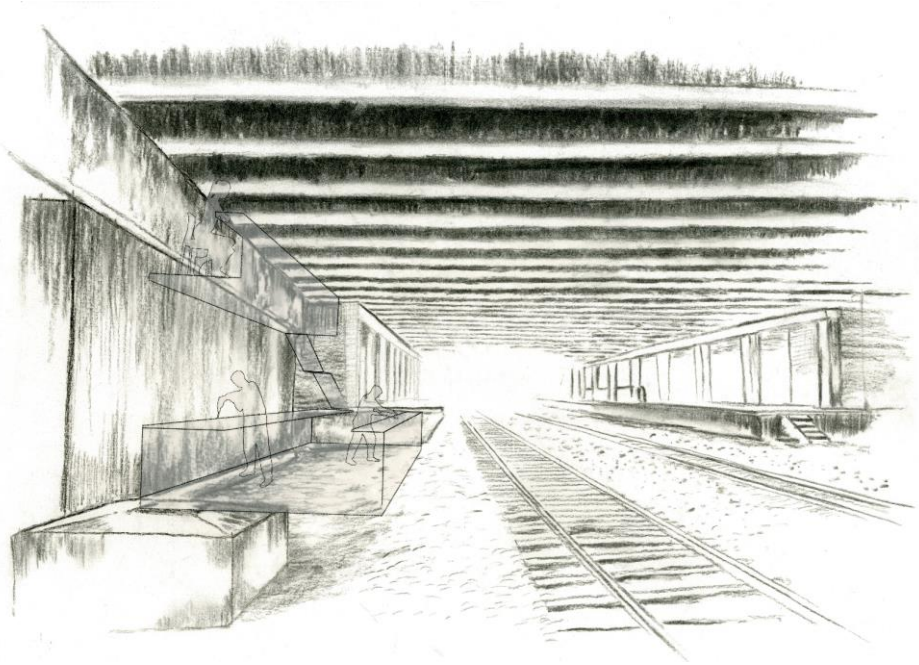


Figure 88: Collage: Tunnel level (own image, 2017). Programme inspired by nature of existing spaces.

Spaces of less significant memory, namely the mezzanine level and the northern wing, will be altered to a greater degree to accommodate the new educational programme effectively.

The mezzanine level and research space above will be used to accommodate the more private aspects of the design school programme, where the architecture is more likely to require smaller individual spaces. The front portion of the building on ground level will be used as a public entrance and threshold to the building.

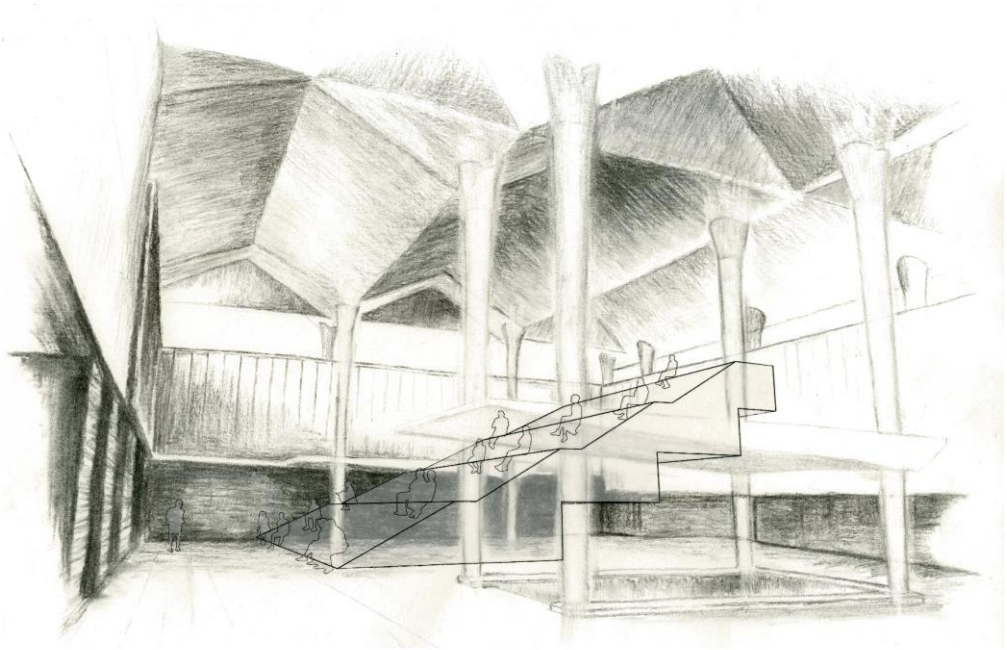


Figure 89: Collage: Main concourse space (own image, 2017). Space of public discourse in site of memory.

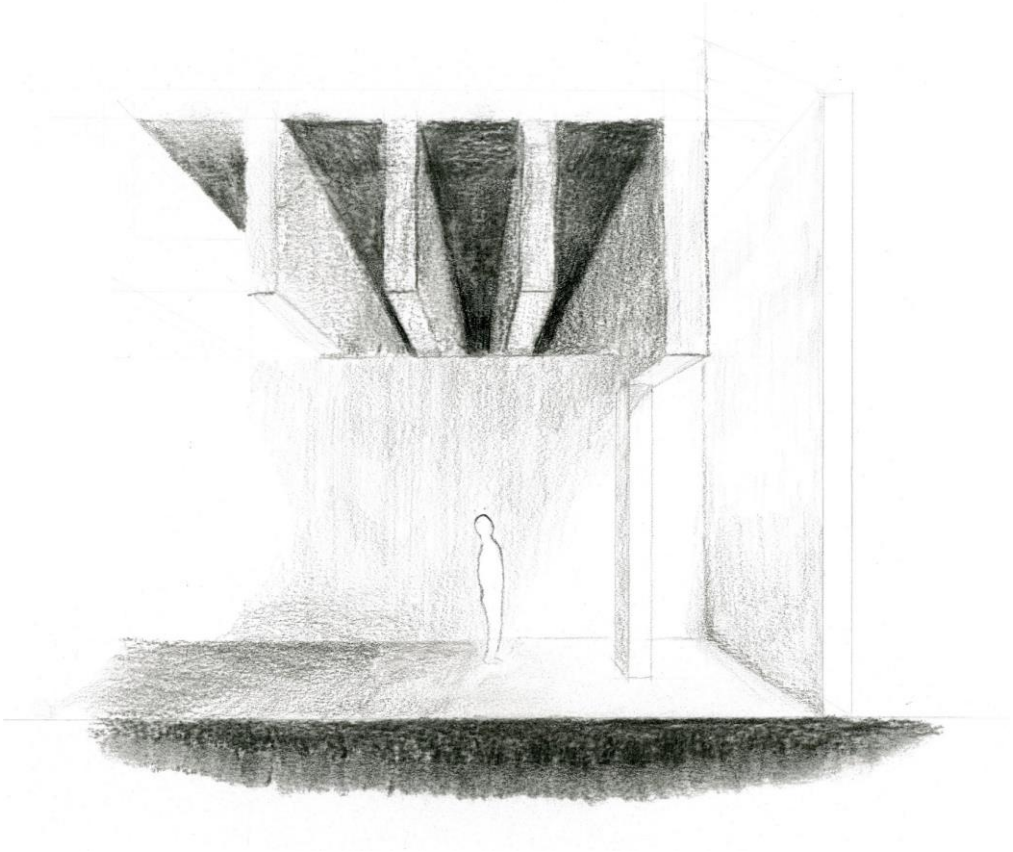


Figure 90: Light study, workshop level (NTS. Own image, 2017).

Design Principle: Light

In identifying the natural lighting needs of the existing and new spaces in order to satisfy the programme of design school, a range of desired light conditions was established as required by different aspects of the programme. The intention is to understand the desired quality of light for the aspects of programme and provide for it through the proposed design. The light quality of the existing spaces was carefully considered and played a role in the ordering of the programme – for instance, the dark space below the building is suited to workshop spaces. As such, a design principle is to **bring natural light into the existing spaces** to let them accommodate the needs of the design school. Utilising natural light to accommodate programme is a key consideration for the existing building and the new portions of the design school.

The ordering of the light that emerged in conjunction with the location of aspects of the programme produces a design opportunity in how light is dealt with in the building. The desired spaces of the existing building are intended to be contrasted with the lighter spaces of the new research space, allowing a **gradation of light conditions** to establish itself from the dark workshops below the building to the bright spaces above. Light will therefore be used to emphasise the characteristics of the spaces along this axis – this is to say that light into the dark spaces will be used minimally, in piercing beams, to emphasise the darkness of the space, whereas in the spaces above it will be diffused to create a glow for the brightly lit library space.

Light also has a **symbolic meaning** in the intervention. Similar to the light boxes in the Constitutional Court project, light is used in the design to indicate that the existing building has been interacted with and transformed from a site of segregation to a space of education and public engagement. At night time, the axes of linkage will be lit up, changing the order from receivers of light to givers of light to articulate the site in the urban landscape and talk to the transformation of the site.

Natural light will be used to emphasise and play off the design principle of **linkage** in the building, where the axes of linkage that said principle establishes will be reinforced through the use of light. Here, light is brought onto this axis to draw attention to it and to provide habitable social spaces that attracts users of the building.

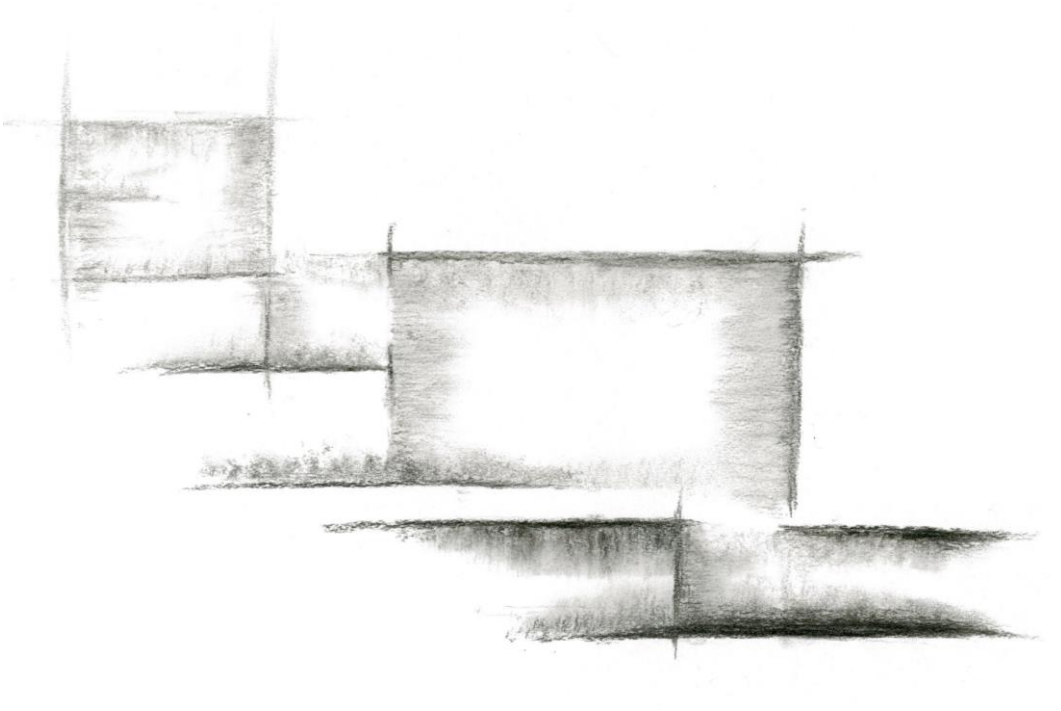


Figure 91: Conceptual section: cascading linked spaces. (own image, 2017). Note desired light qualities.

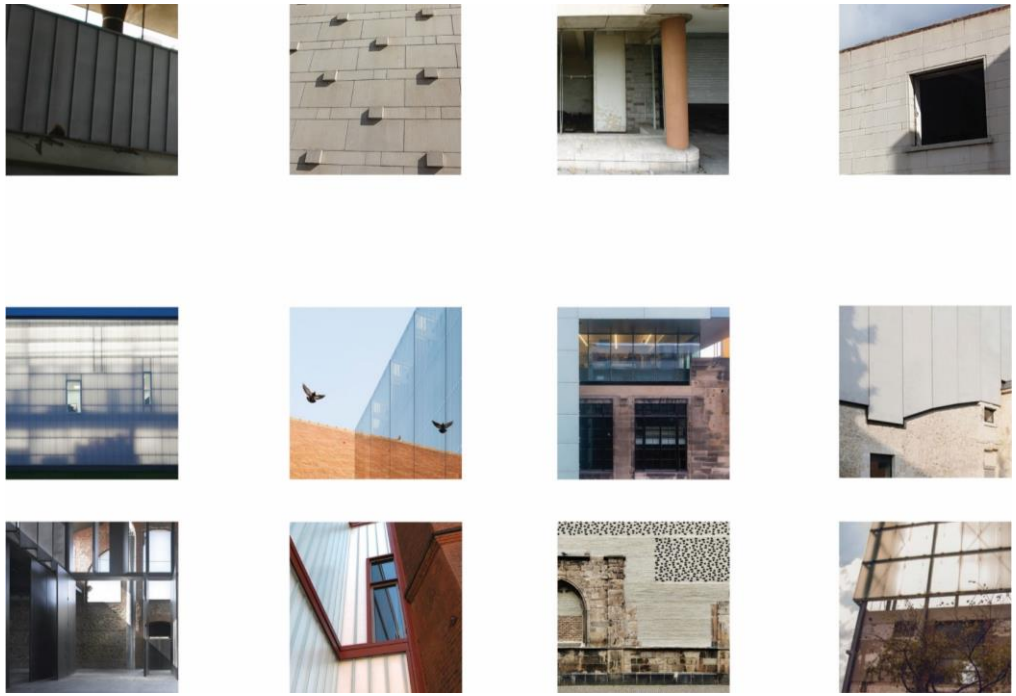


Figure 92: Collage of possible material renderings (own image, 2017)

Design Principle: Materiality

The material intention is to allow the spaces of the old building to remain legible from the new, and as such the material resolution is one of contrast between existing and intervention. As the material palette of the existing internal spaces is dominated by hard finishes, such as concrete and terrazzo tiling, the primary materials for the new interior will bring in softer tactile qualities to the spaces. This will be done for two main reasons: to bring contrast with the old, and to make the spaces more suitable for human habitation. Dissimilarity between new and old will be emphasised through the geometry of the new, which will contrast the harsh rectilinear nature of the existing.

The architectural resolution of the design will require the removal of some portions of the existing to accommodate the new programme, and any punctures will follow the same principle of pronouncing them as such. The material intention here is to articulate the punctures through the existing structure with a hard material, such as steel, that contrasts the primarily concrete and terrazzo clad structure.

The material intention regarding the fulfilment of design principle of light is to use a material palette that allows light to permeate into the building. This maintains thematic coherence regarding pronouncing the new as different to the existing, as the existing structure is made primarily realised in robust materials through which light does not penetrate. The realisation of the new research space will also allow light to permeate its skin, bringing light into existing spaces and acting as a source of light at night time.

As established in the *Building as a tool of Apartheid* section, the existing building's closed off nature actively dissociated its users from the city around it. A design consideration therefore is to create visual links to the surrounding city to allow users to orientate themselves within the building. This will be achieved in conjunction with the design principle of **Light** by selectively puncturing through the building at points that provide reference to city landmarks, especially other sites of memory (such as the Castle of Good Hope and District Six).

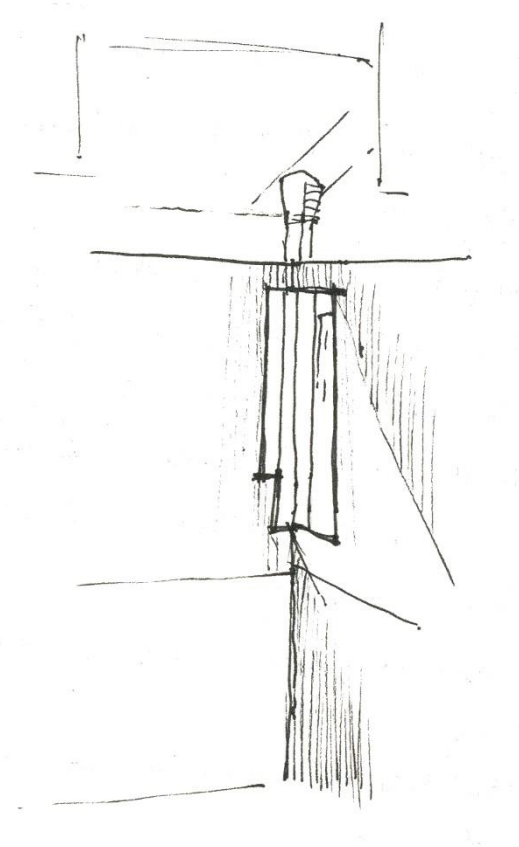
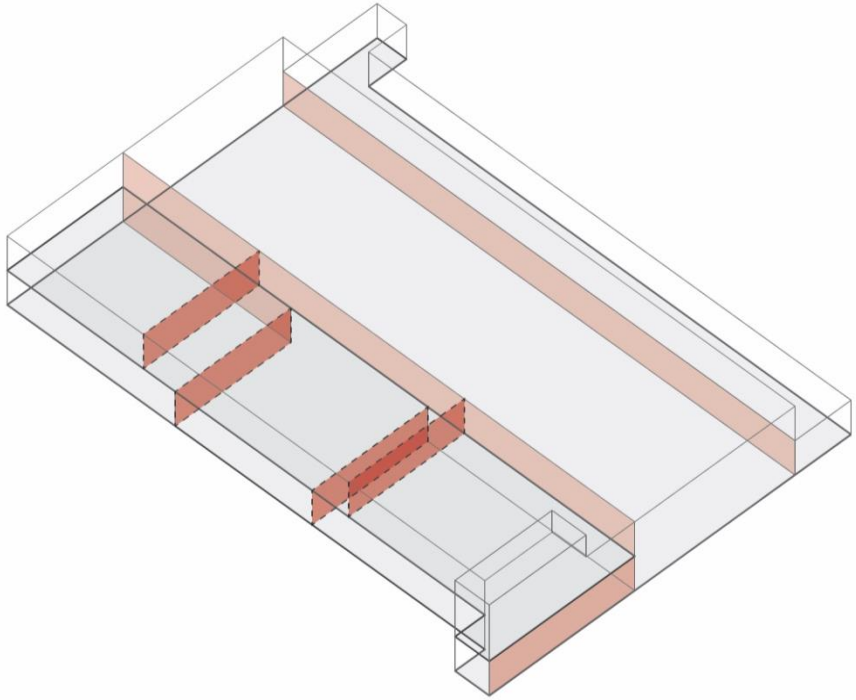


Figure 93: Puncturing through existing to create visual link to surrounding context (own image, 2017)



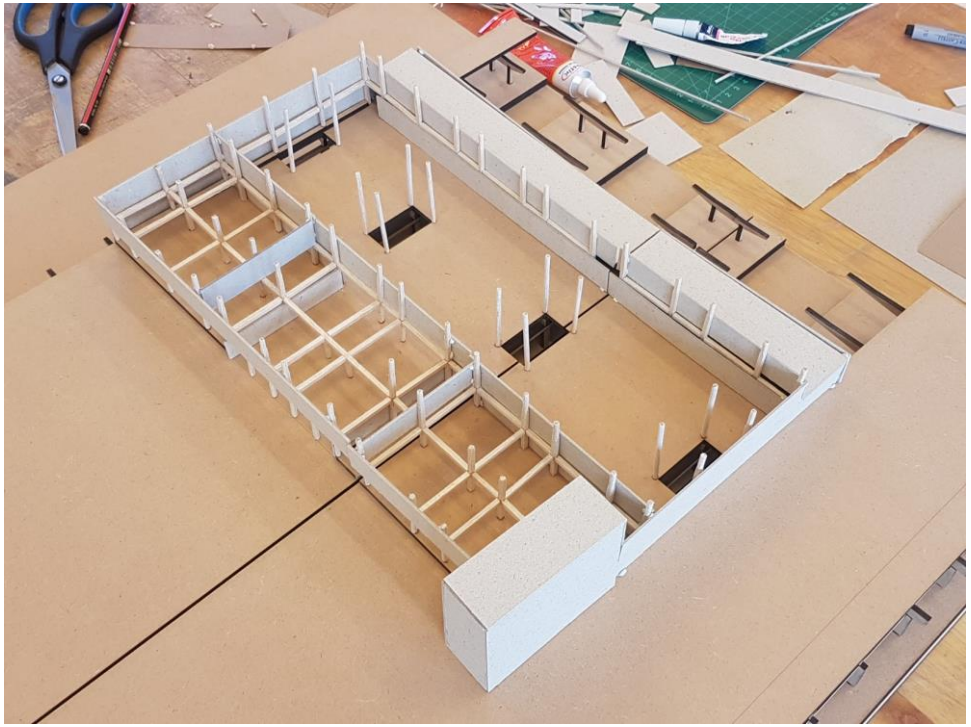


Figure 94 (top left): Planes of existing building to be disrupted (own image, 2017). Dotted is totally removed, light red indicates linkages through existing.
Figure 95 (top right): Model of existing building planes (own image, 2017).

The design principles establish a series of methods and approaches to the architectural intervention. The issues surrounding the site, from its symbolism to complex structural system on a flyover have lead to a carefully considered set of guiding principles.

The spatial driver of the project, which interacts and subverts the segregated nature of the existing, is useful and finds harmony with the idea of a linked programme.

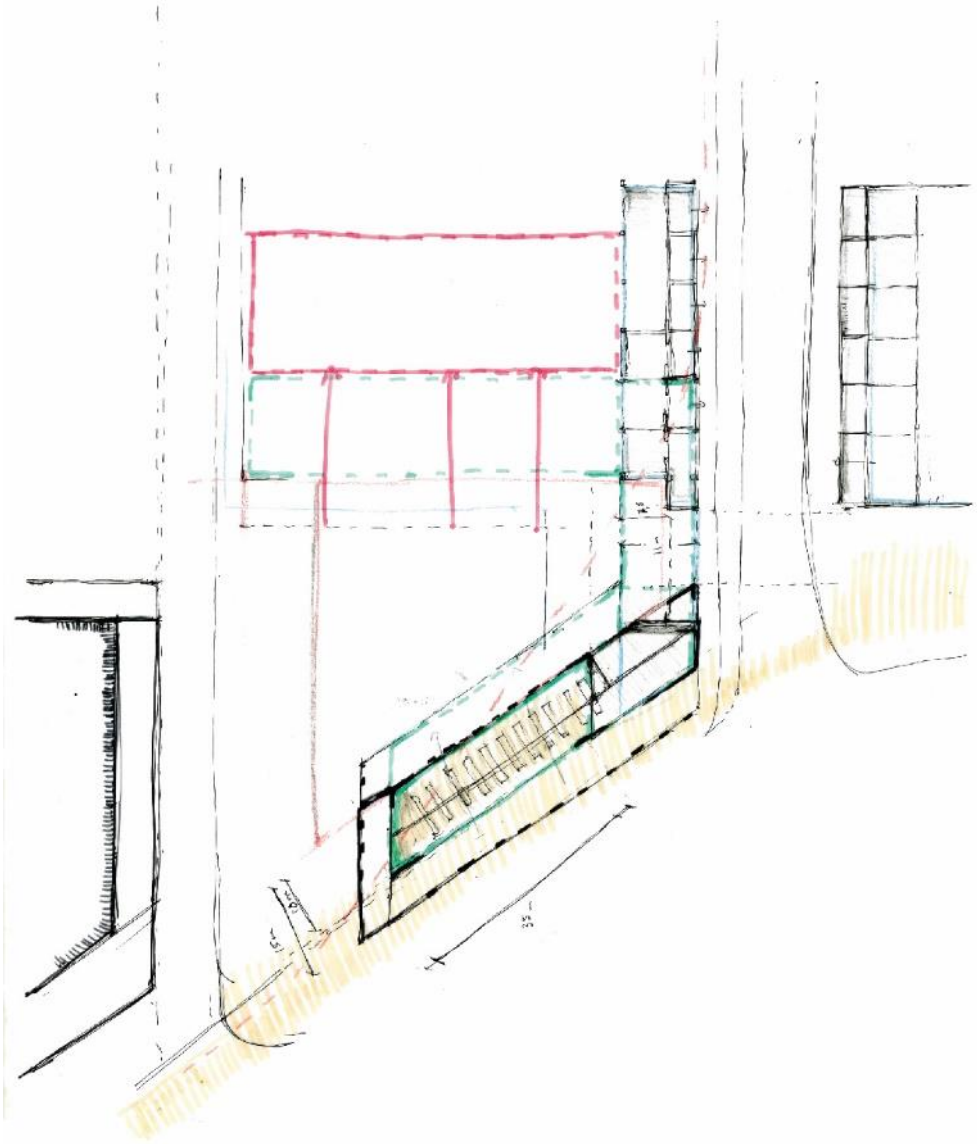
Maintaining the main concourse space as publically accessible at times is a key condition of the project. The design focuses on ways to activate the main space while holding it open to a range of programs. in order to bring the public into a space of memory.

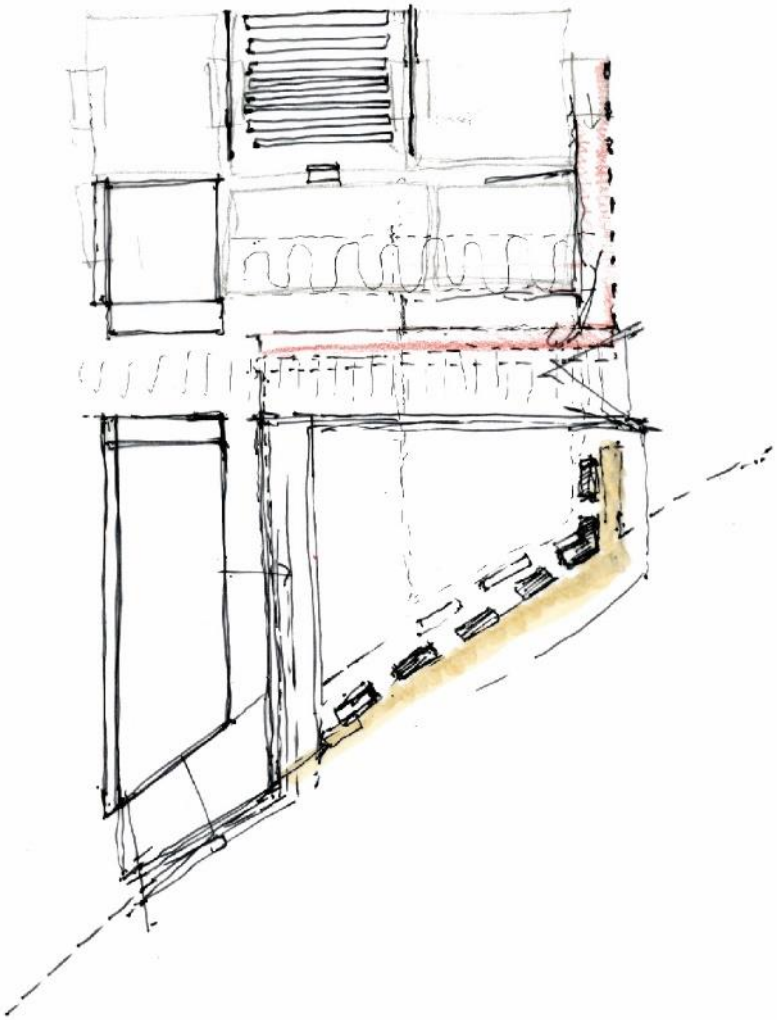
The workshop programme finds resonance with the space below the platform space below the building.

Material resolution of the relationship between existing and new is to be further refined to sufficiently understand how the intervention may occupy the existing building, and what the detailed relationship will be between the two at this level.

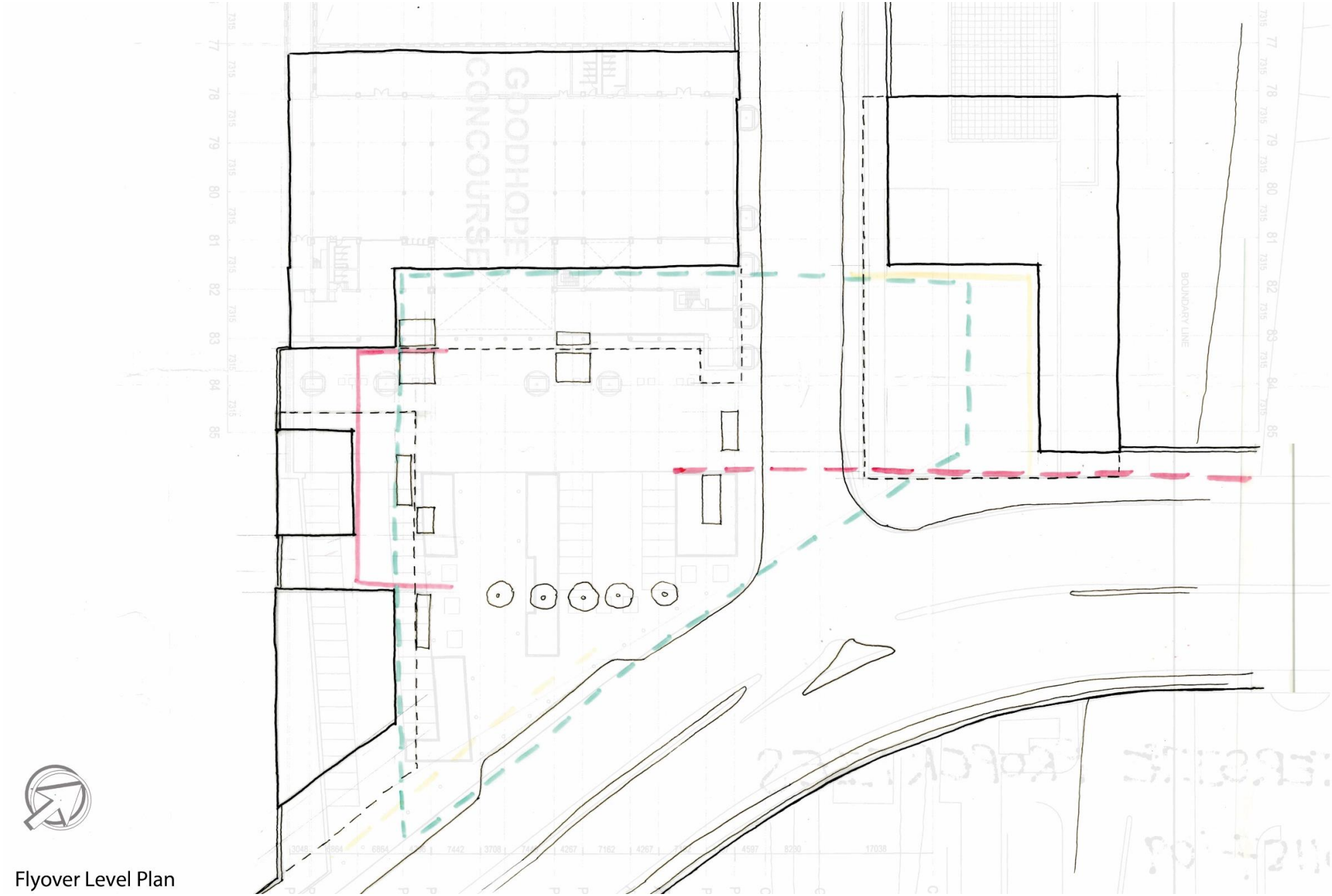
Reconnecting the site to the urban landscape is a key consideration. Through the satellite campus occupation of site, the public space will see sufficient day time users to keep it active and vibrant. Through the developments around the site, the precinct may be brought back into the city and even form as a key node across the train line armature.

PART SEVEN: DESIGN PROCESS



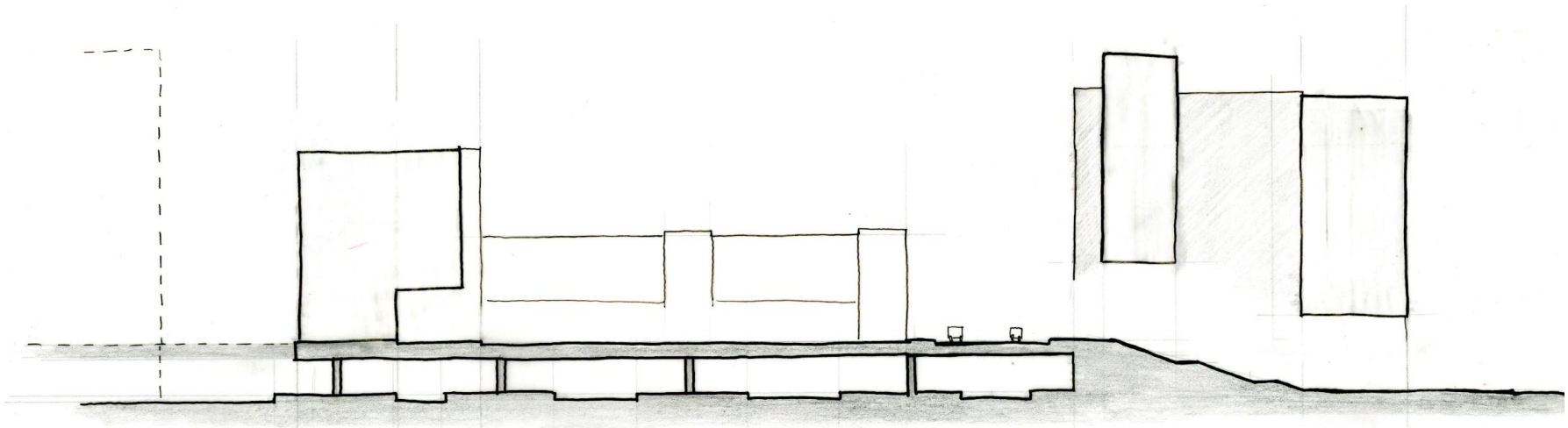


Site designs with public space, considering interaction with pedestrian armature.

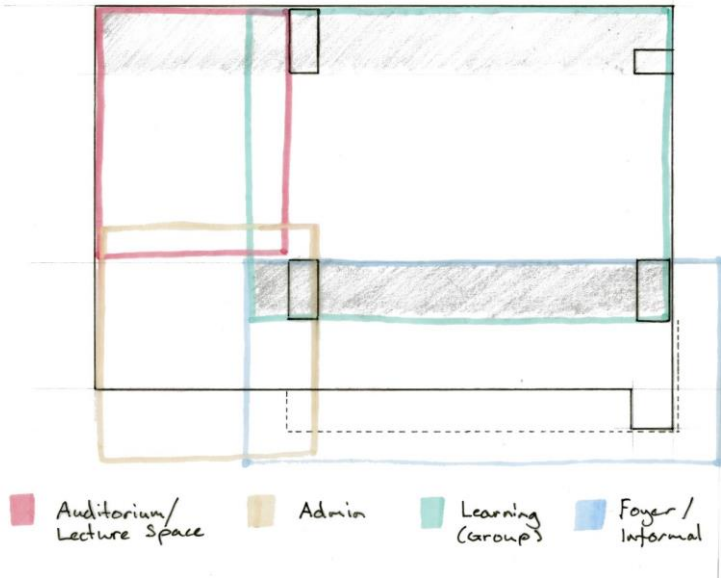


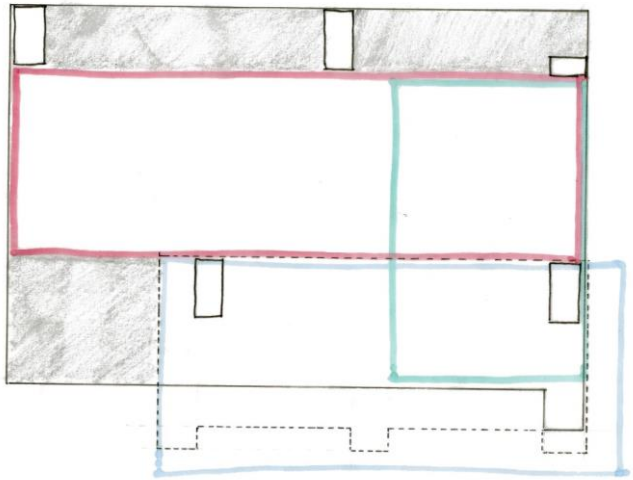
Flyover Level Plan

Site plan NTS. Integration with pedestrian armature to be considered. Other satellite campus buildings to form threshold holding spaces internally (indicated in dotted lines)

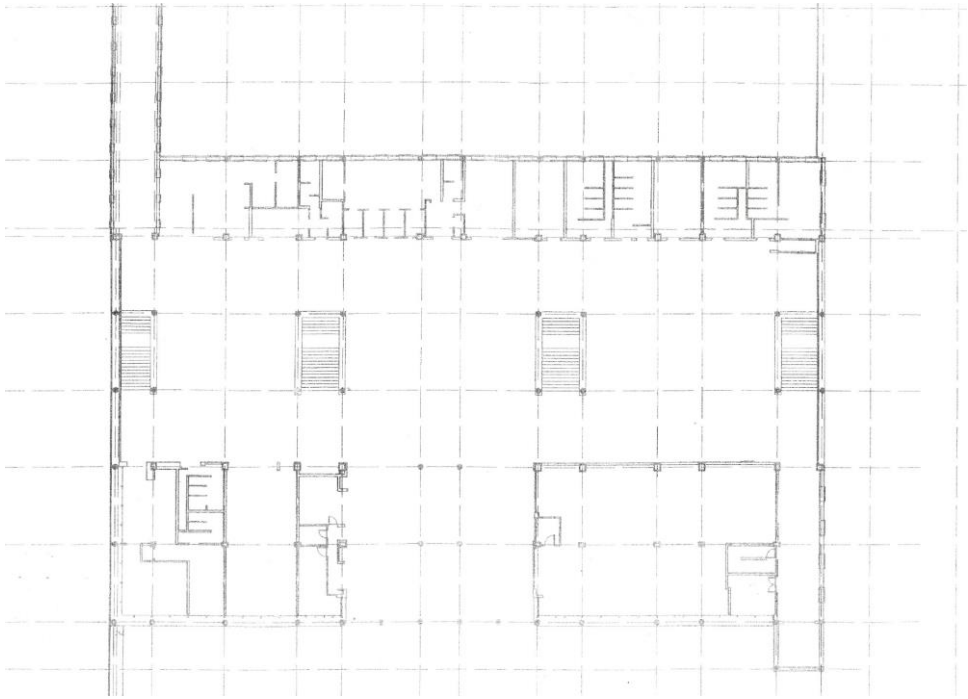


Section through urban scheme, NTS

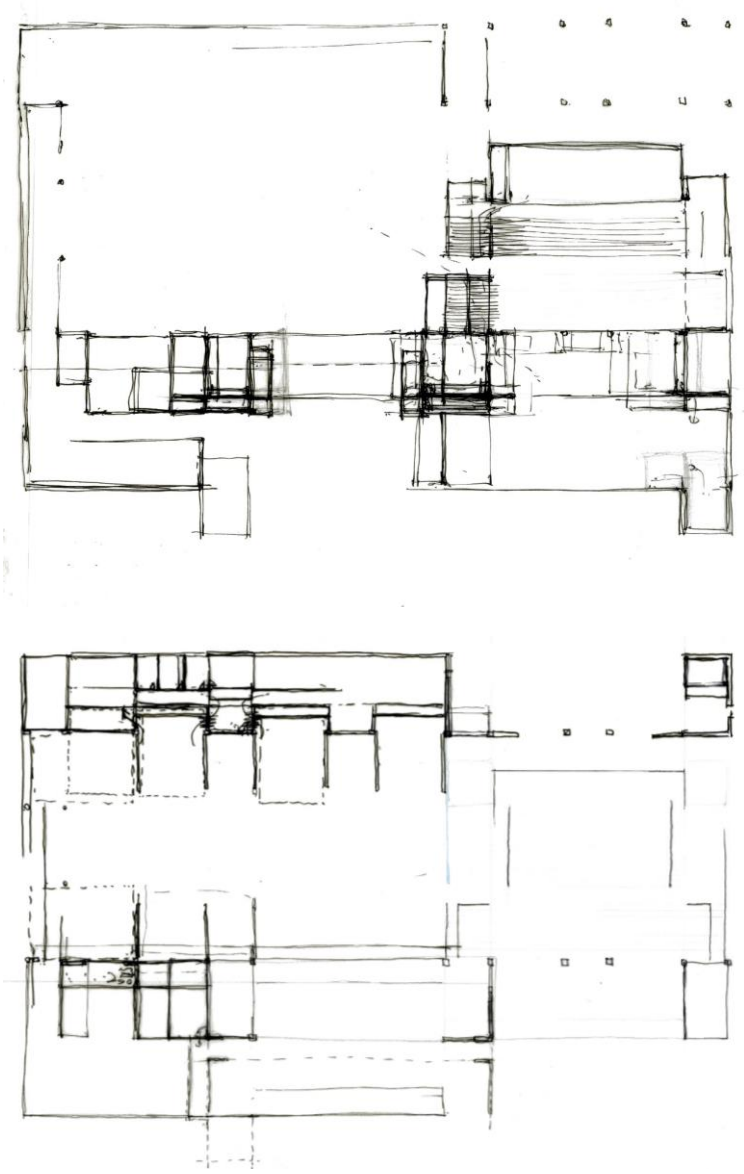




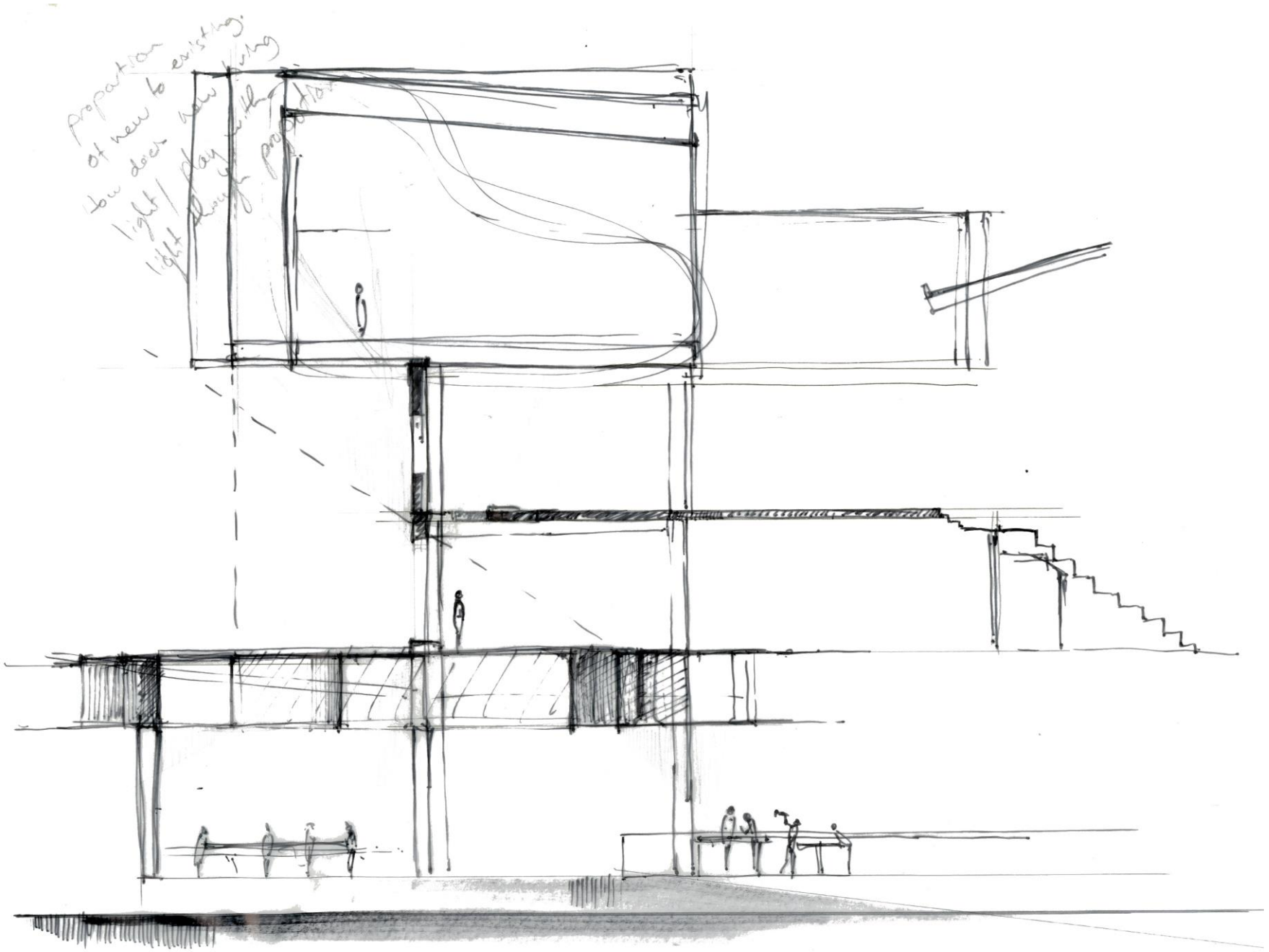
Plan diagrams of served and serving spaces (serving spaces – grey)



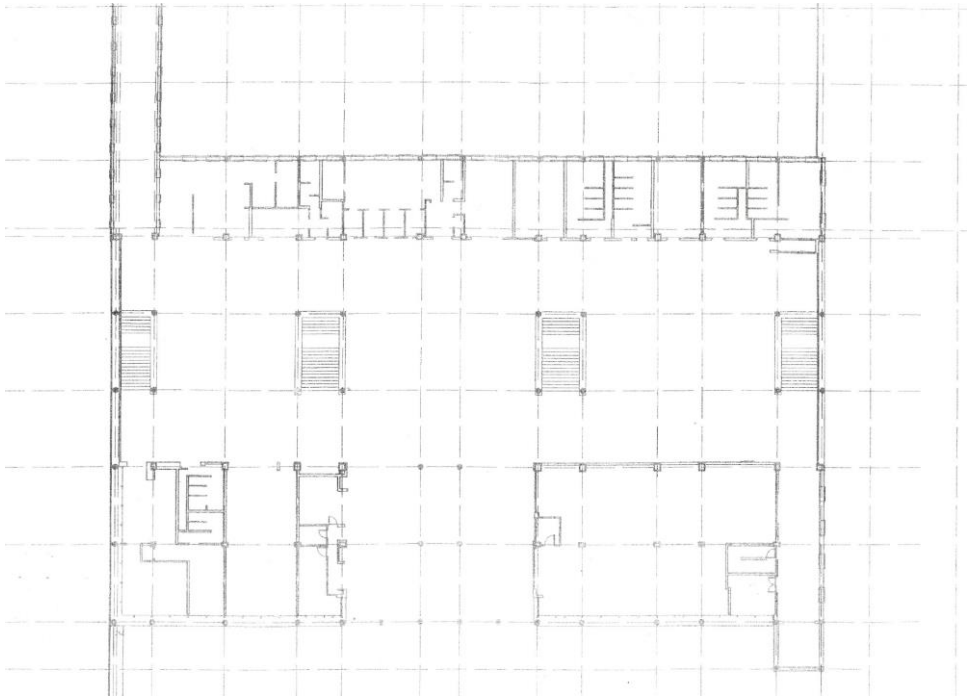
Existing plan, flyover level NTS,



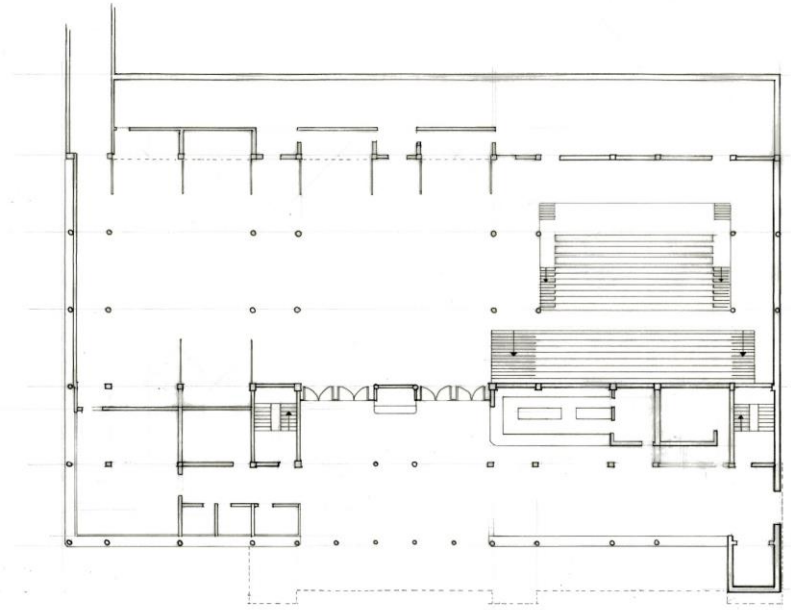
Development of plan



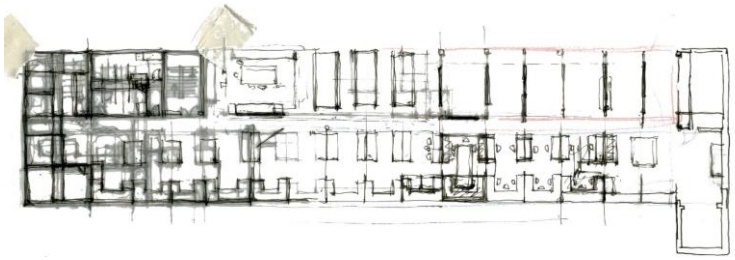
Development of section NTS



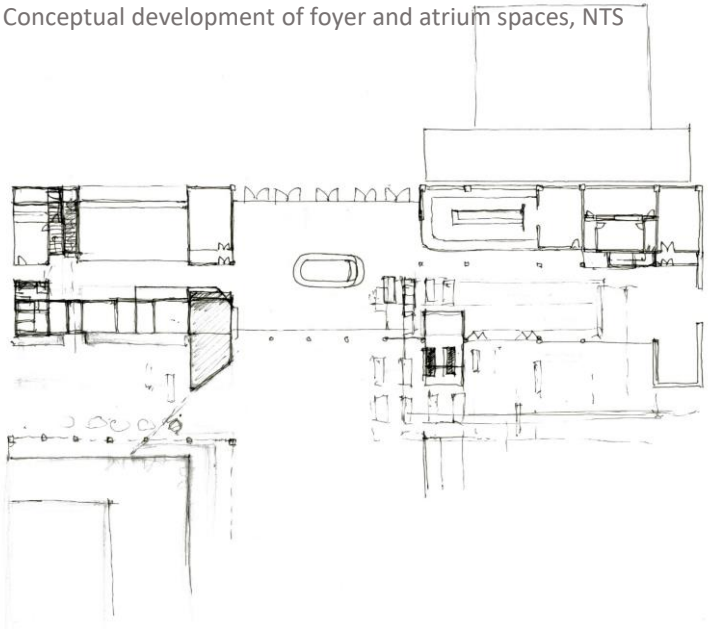
Existing plan, flyover level NTS.



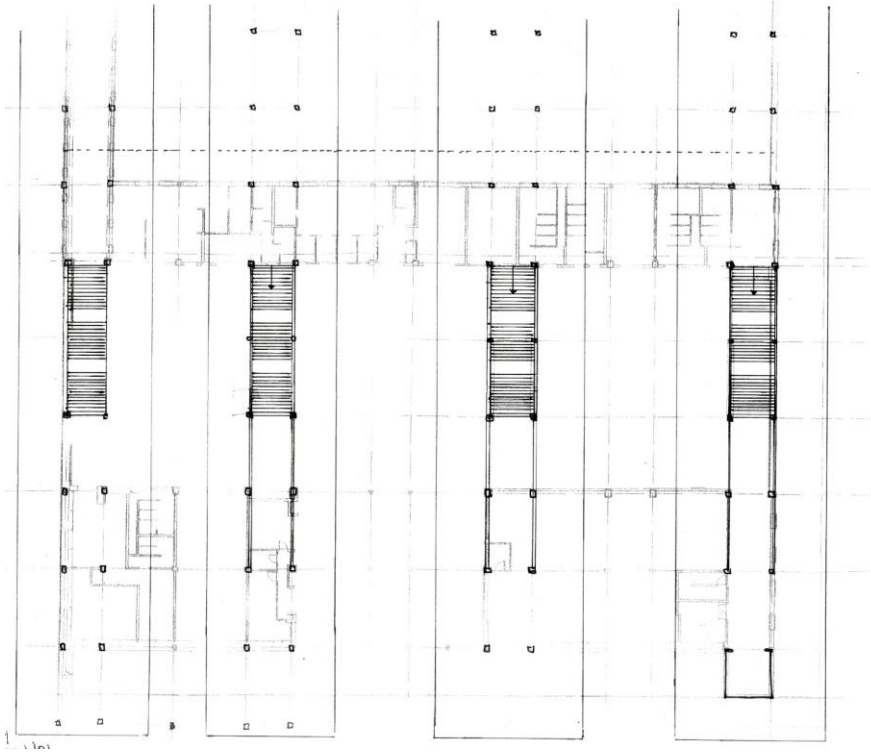
Conceptual development of foyer and atrium spaces, NTS



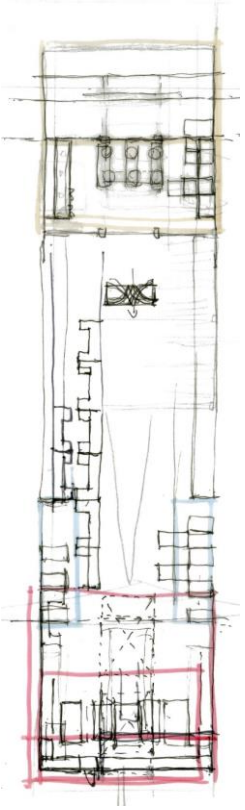
Mezzanine level plan – studio space, NTS.



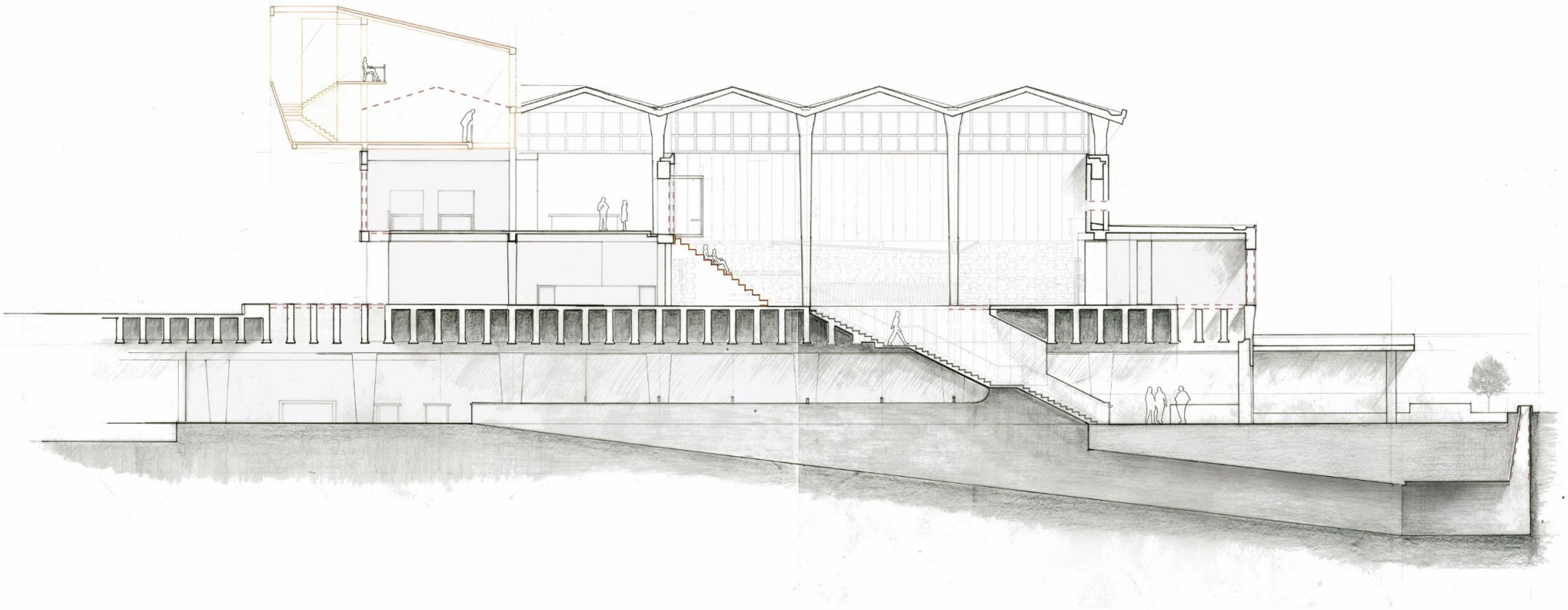
Conceptual development of foyer space, NTS



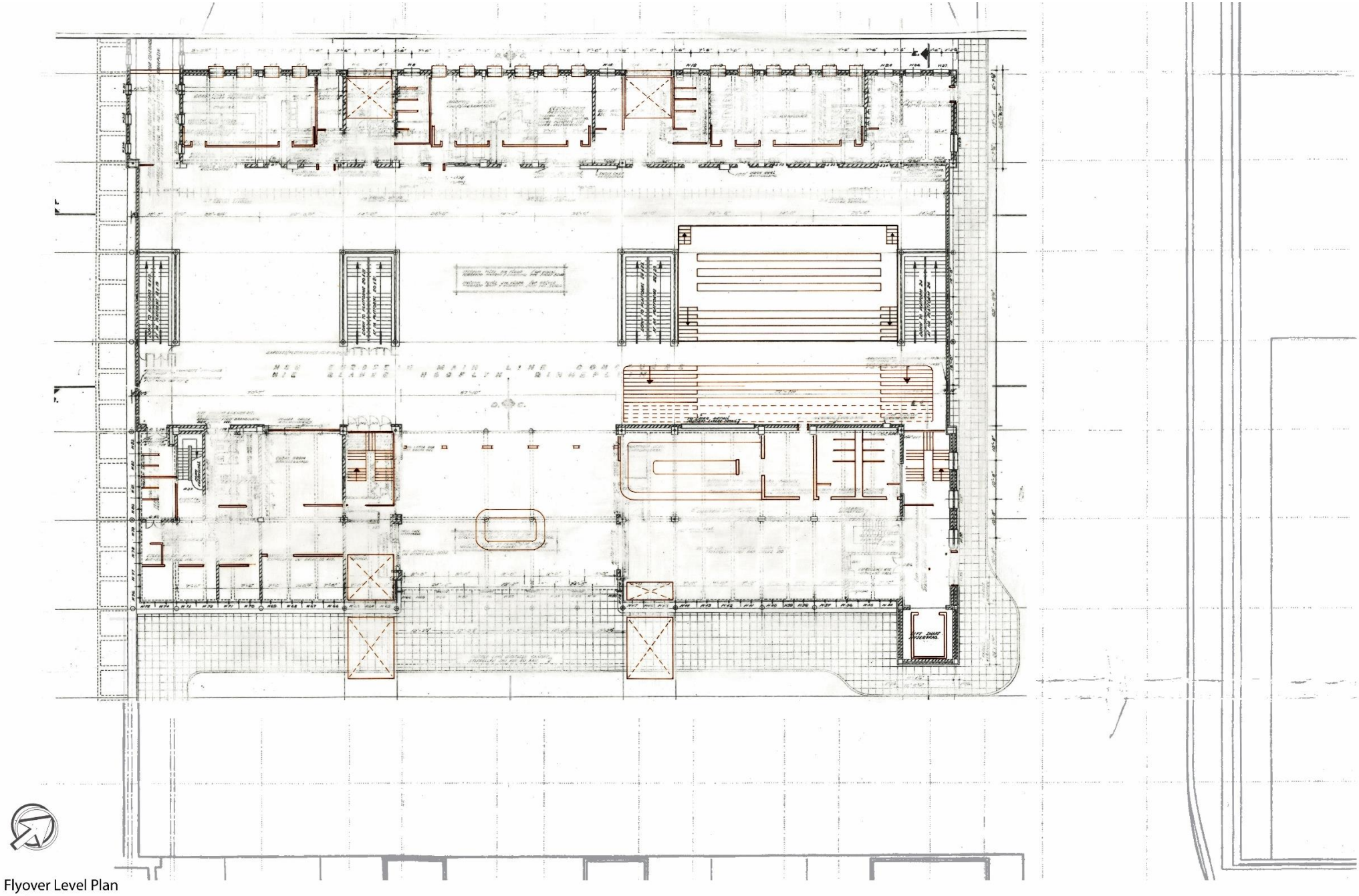
Platform level plan, NTS



Conceptual development, workshop space, NTS

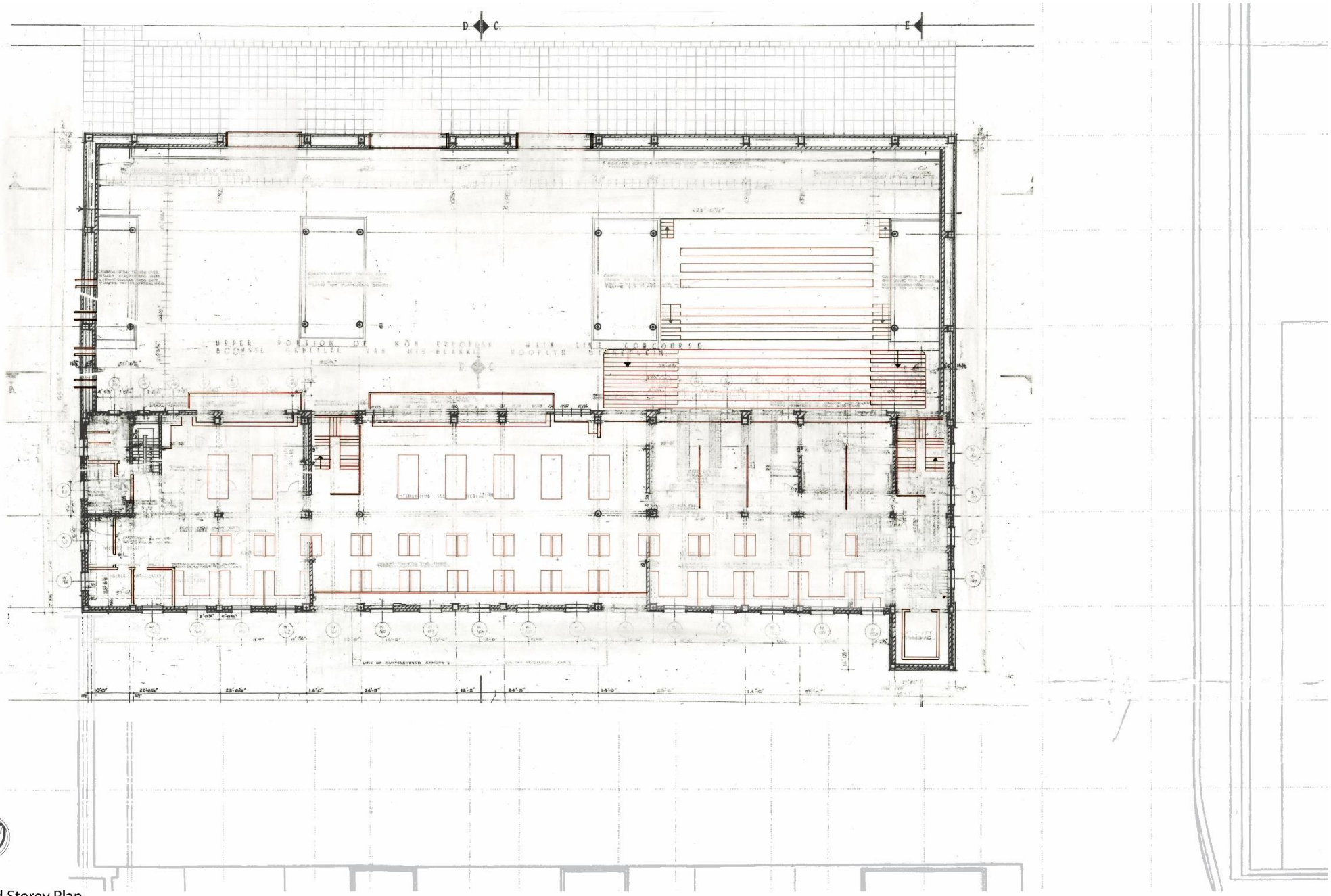


Section through existing movement axis, now envisioned as axis of connectivity. NTS



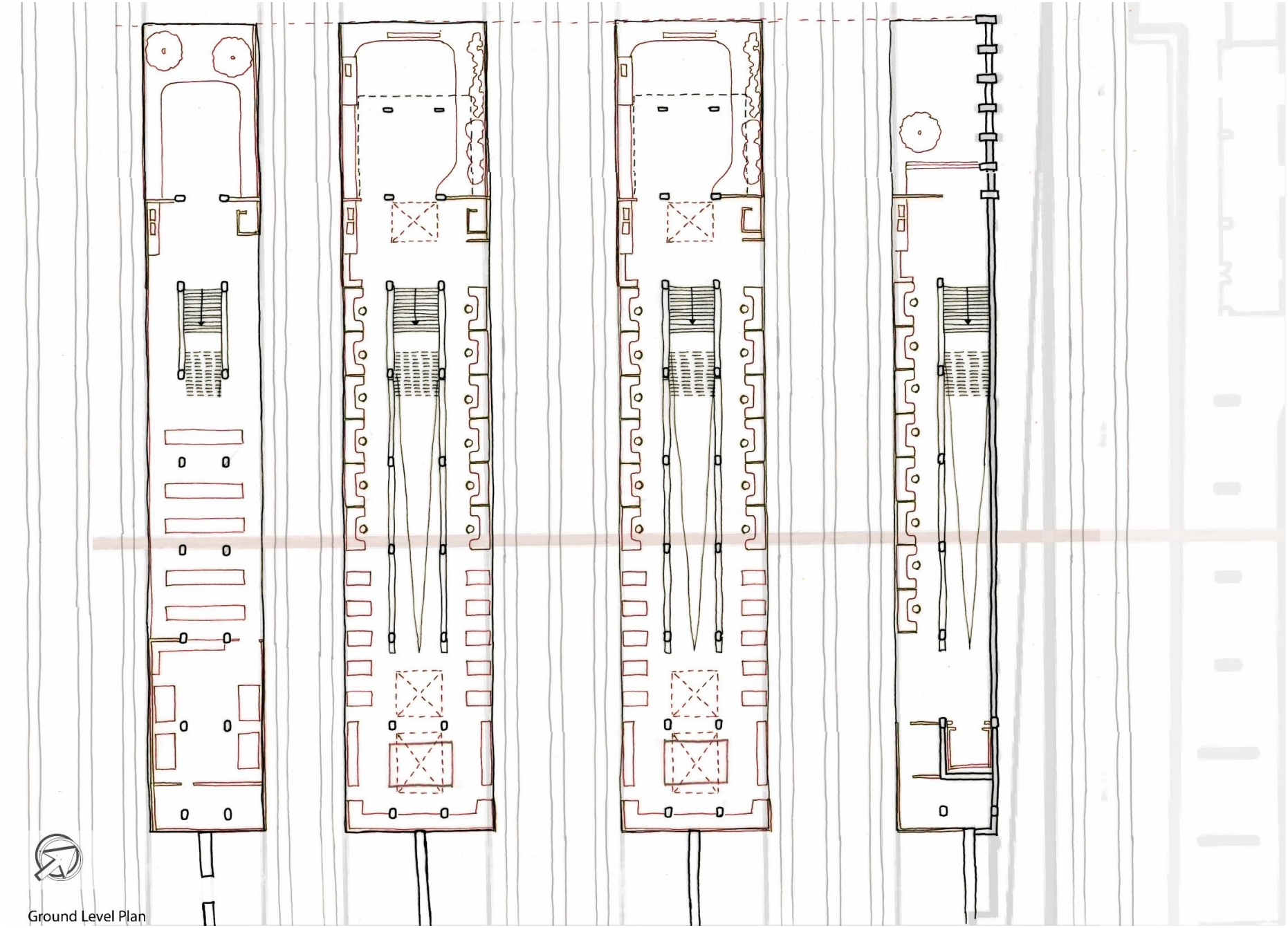
Flyover Level Plan

Conceptual development of flyover level plan through erasure. New indicated in Red. NTS



Second Storey Plan

Conceptual development of mezzanine level plan through erasure. New indicated in Red. NTS



Conceptual development of platform level plan through erasure. New indicated in Red. NTS

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APPENDIX

Norman Foster, Reichstag New German Parliament (1999)

"The Reichstag's new cupola or "lantern", has quickly become a Berlin landmark. Within it, two helical ramps take members of the public to a viewing platform high above the plenary chamber, raising them symbolically above the heads of their political representatives. The cupola is both a generative element in the internal workings of the building and a key component in our light and energy saving strategies, communicating externally the themes of lightness, transparency, permeability and public access that underscore the project."

-Lord Norman Foster, 2000

Norman Foster's Reichstag New German Parliament intervention is a complex political project that uses technical resolutions to engage in a dialogue with the symbolism and memory the original structure holds. The project talks to issues of negative social and political histories. The intervention engages with technical lightness as a design necessity, but further in a symbolic manner to express itself as new and separate from the original building.

The completed Reichstag Project (2005)

Figure 56: The internal space of the Cupola (2010)

The original building was designed as the house of parliament for the German Empire by architect Paul Wallot in 1884. The history of the building includes its role as the political tool the Nazi regime from 1933 until 1945. The building was captured by soviet forces near the end of the Second World War. During the Cold War period, the building housed the parliament of West Germany until 1971. Through the building's role in the Nazi regime, it accrued a negative history that translated into a strong negative symbolism. When the parliament of the reunified Germany decided to return to the building in 1995, a design competition was held to create an architectural intervention into the building to allow for the parliamentary function to return to building.

Norman Foster's design was selected. The intervention aimed to restore and update large sections of the existing building, maintaining the traces of the history visible on the building. The focus of this technical inquiry will be into the "Cupola" – the glass and steel dome structure on the roof of the building. The original building had a dome atop the plenary chamber, but this was destroyed in the early 20th century. Foster's design replaces the original dome with a contemporary steel and glass structure. The new dome is intended to symbolise a democratic political agenda for Germany, which was previously compromised under the Nazi Regime. The new structure is the most public part of the building, providing a walking route for visitors where they can look down into the proceedings of the parliament; a clear hierarchical play about the relation of public to government.

The design of the dome consists of 24 steel ribs, arrayed at equal intervals along the lower ring beam. The steel ribs taper towards the upper ring beam, where they meet it at smaller intervals. These steel ribs take the load of the glass skin of the structure as well as supporting the spiral ramps forming the walkway (Cyganiak, 2015). The observation deck atop the walkway is suspended from the rib structure on steel cabling. Steel ring beams provide lateral support for the steel ribs. The dome is finished in approximately 3000m² of glazing wrapping the structure, a factor which necessitates serious solar heat gain consideration within the design (Foster, 2000).

An inverted cone of mirrors is hung from the observation deck, directing natural light into the into the chamber space below. At night time, the role of this cone is reversed. Through a series of lights projected onto the mirrors from inside the structure, the cupola becomes a landmark on the Berlin landscape, reiterating the message of the project (Foster, 2000).
Given the climatic condition of Berlin falling into a 'temperate continental climate', both heat gain and heat loss required resolution (Cyganiak, 2015). This is dealt with primarily through passive design principles, whereby hot air rises to the top of the dome where it is expelled from the building envelope through a louvre system. A further environmental system includes an automated shading device that prohibits excessive solar heat gain entering into the plenary chamber.

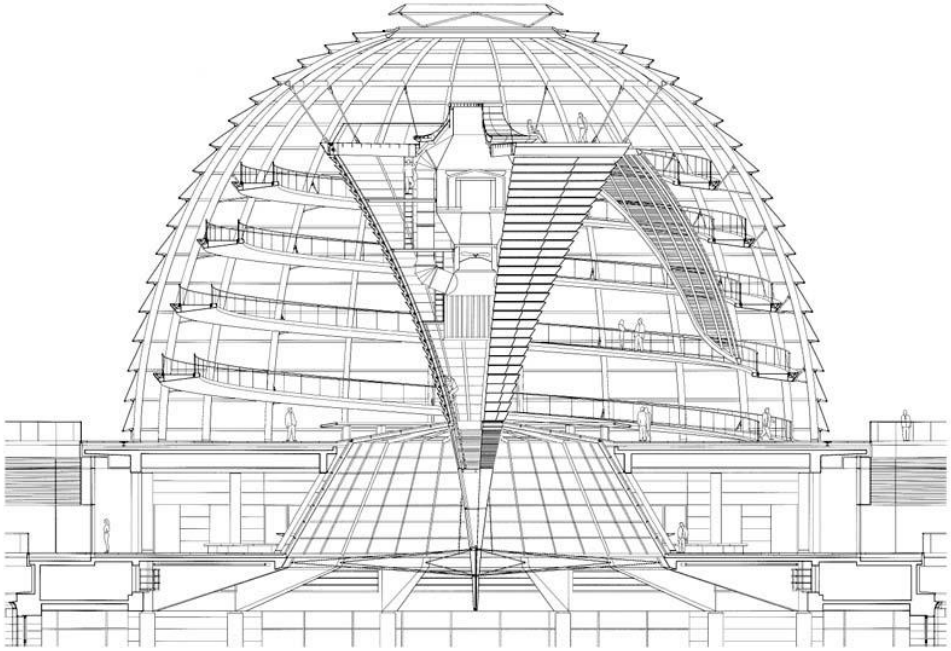


Figure 57: Section through the Cupola (1995)

The technical resolution of the project allows the building to achieve lightness through a variety of ways. The dome form allows the intervention to do away with overbearing structural members, instead replacing with a greater number of smaller structural members (the steel ribs) to reduce the visual 'weightiness' of the design (Loschke, 2016). The use of glass as the primary skin element serves to reiterate the lightness of the cupola. The visual transparency it affords the intervention contributes to the aesthetic of lightness; in combination with the active use of light in the design, the cupola becomes as a light and transparent symbolic landmark.

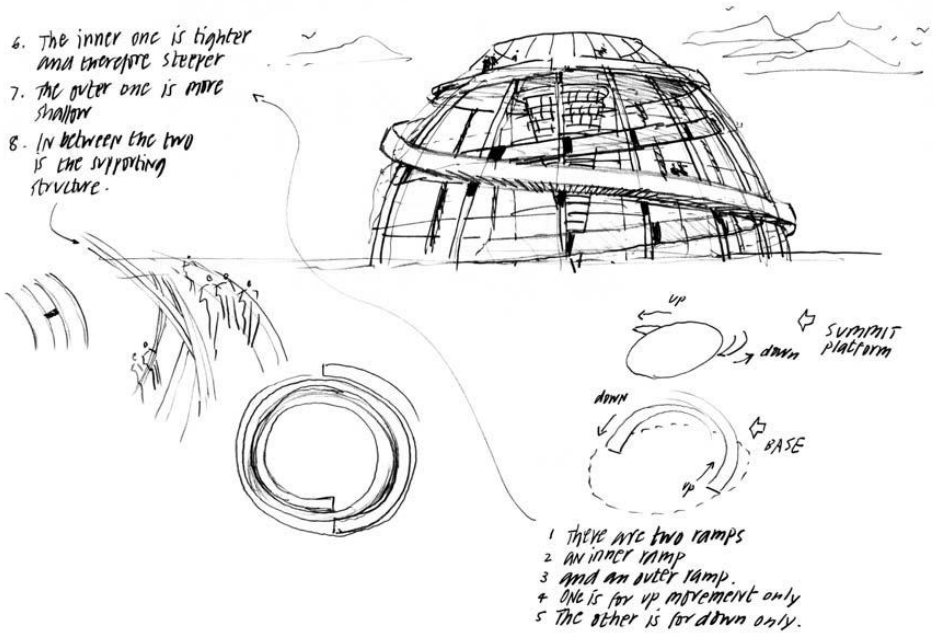
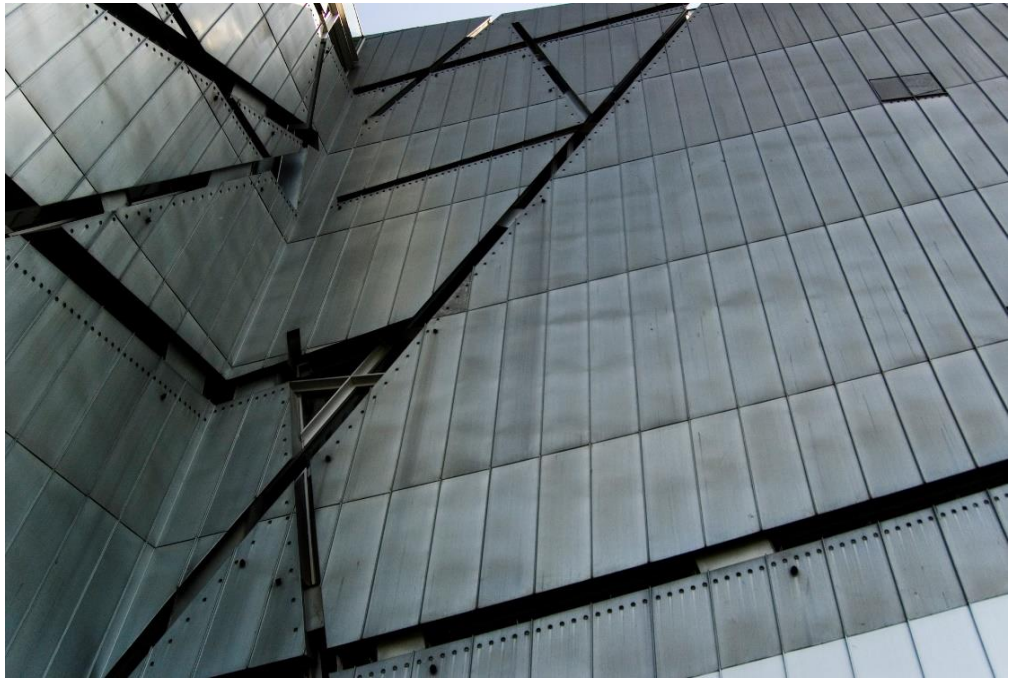


Figure 58: Design sketches for the Reichstag Cupola. (1990)

Figure 59: The Cupola as viewed from the roof of the Reichstag. (2000)



Façade detail of Studio Libeskind’s Jewish Museum, Berlin. 2010
Façade detail of Amateur Architecture Studio’s Ningbo Historic Museum, 2009

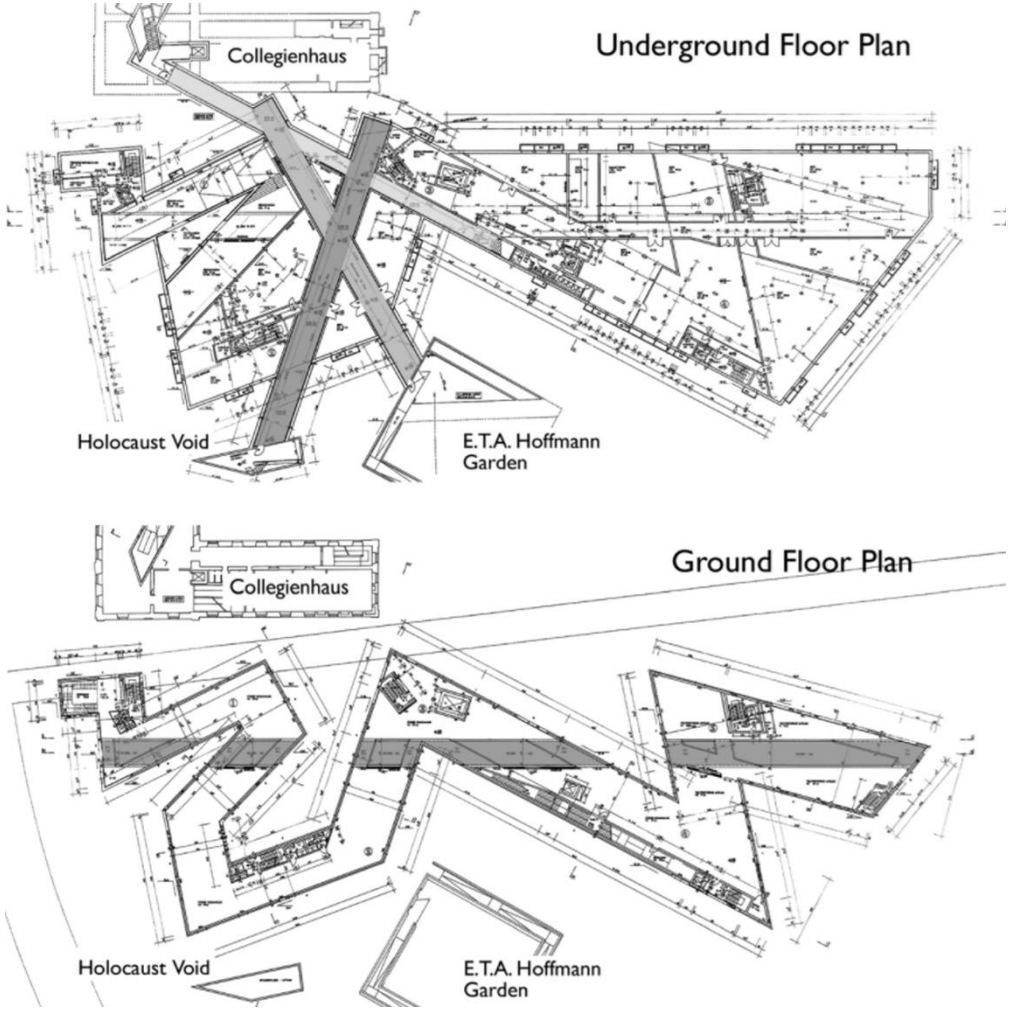


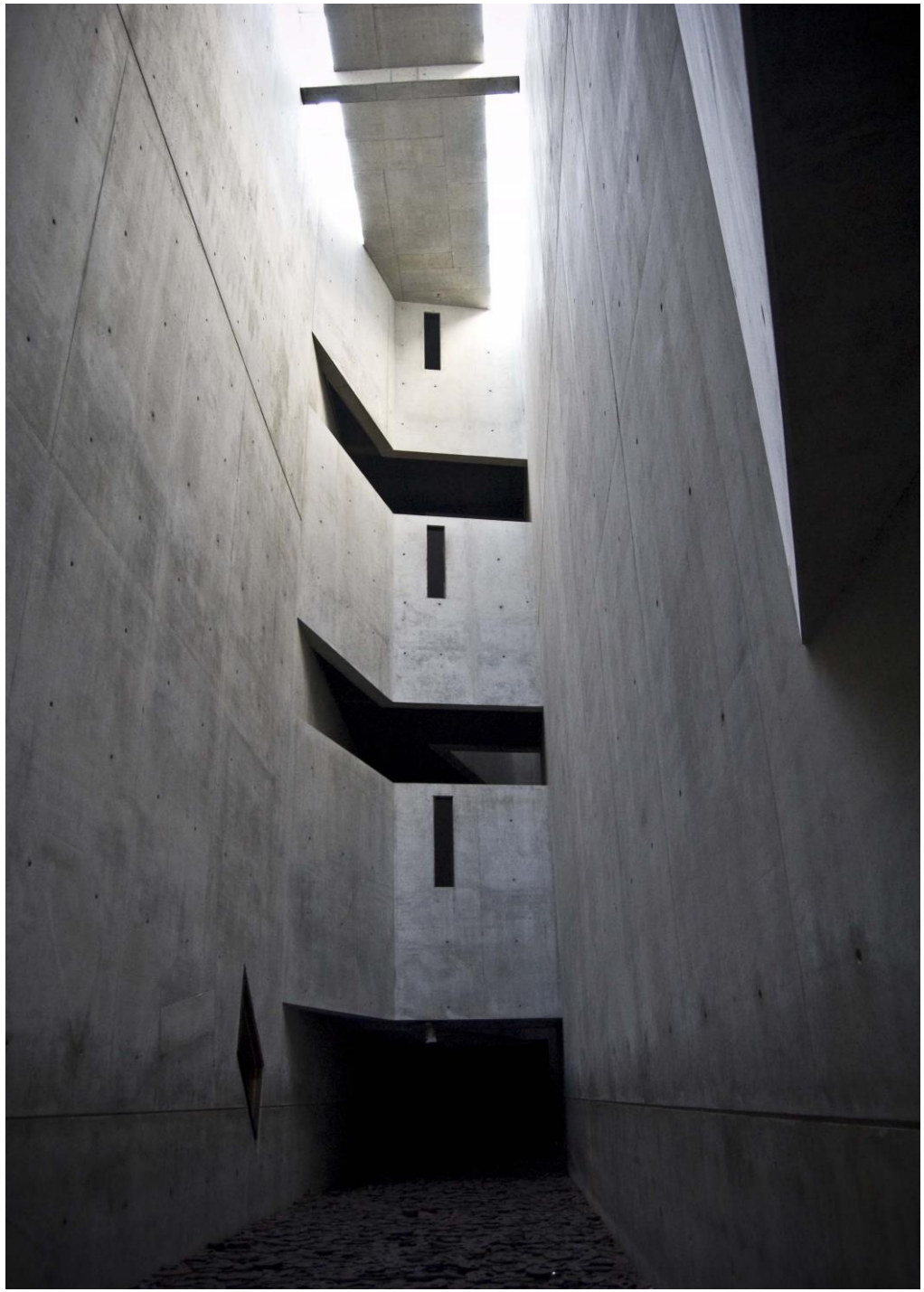
Figure 5: Plans of the Jewish Museum intervention.
Note the relation of the design to the existing Collegienhaus and the ETA Hoffman Garden below ground, and the architectural promenade established through the plan of the design.

Studio Libeskind: Jewish Museum, Berlin (1999)

The work of Daniel Libeskind rose to international prominence in the late 1990s around his Jewish Museum in Berlin, a project that spanned 10 years to be completed in 1999. The brief for the project was to design an extension to the original Jewish Museum (1933) to encapsulate the Jewish experience before, through and after the Holocaust – an extremely negative social memory that the design actively engages with. Libeskind argues that the project was about creating a Jewish identity within Berlin, and to do this he relies heavily on symbolism and expression within the design to convey this meaning. The form of the architectural design is bold and jagged, drawing attention to the issue and the building – a physical 'scar on the landscape' is created. Contrary to conventional building standards, Libeskind utilises a range of tilted angles in the design of the walls and skin of the building to create instability and ambiguity in the spatial experience of the design (Hansen-Glucklich, 2014).

The plan of the building is devised around establishing relationships between the site and the cultural landscape within Berlin. As such, the angular nature of the plan is due to an urban matrix that connects the building to the former berlin Museum, the Holocaust Tower, and the ETA Hoffmann Garden (Hansen-Glucklich, 2014). The design reinforces these links through an underground network linking these significant spaces, holding the Jewish Museum as autonomous yet still connected to its cultural, social and political context.

The visitor's experience of the building is highly controlled and guided; the design foregoes a ground level entry to the building, forcing visitors to pass through the underground network and enter the building from below. The promenade utilises of dead ends and voided spaces to evoke an emotive response from the visitor – see figure 5 for reference (Hansen-Glucklich, 2014). Light is carefully controlled throughout the spaces, with natural light penetrating the harsh (primarily off-shutter concrete) spaces from above to symbolise hope within the Jewish experience of the Holocaust.



Voided chamber.
The dramatic use of concrete gives a stark experience of the 20m high void. The narrow proportions of the space create an unsettling feeling for the visitor.

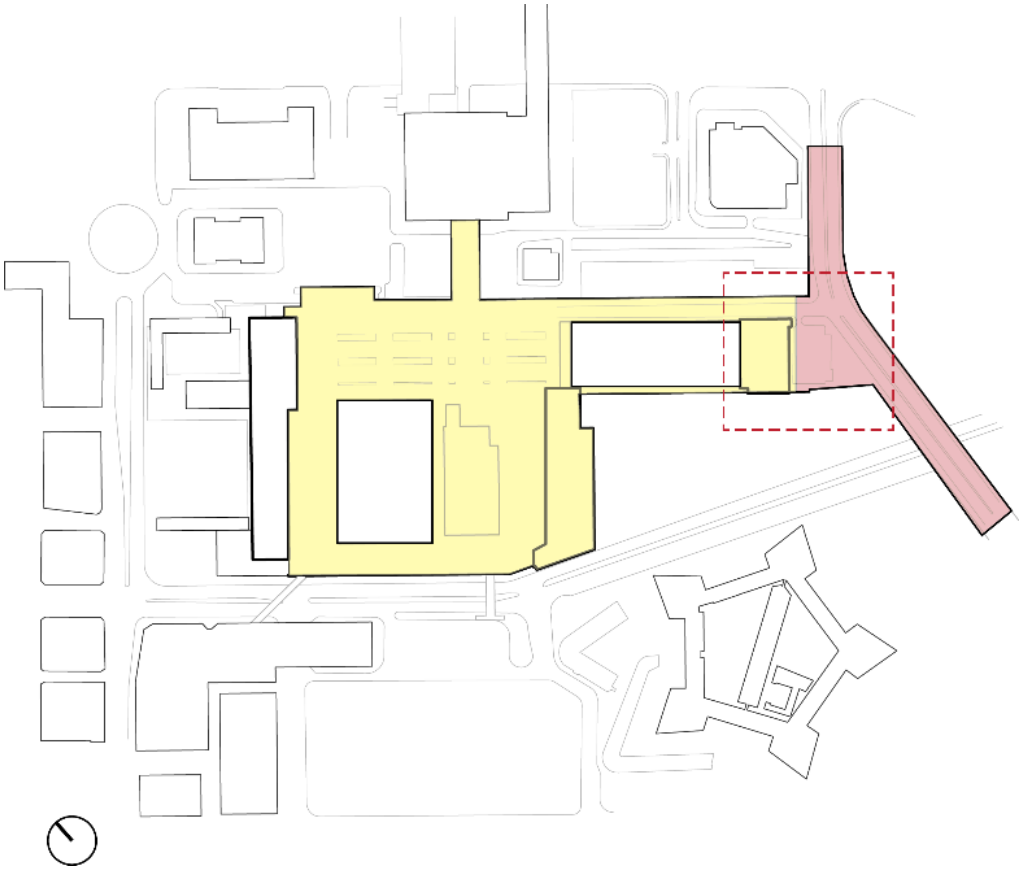


Figure 38: Plan of flyover (own image). Yellow indicates the section of the flyover made up of column and beam system (structural system 1), red indicates section where columns are embedded into structural walls (structural system 2).

The structural systems of the flyover:

Designed to create a raised ground plane, the structure of the flyover is made to integrate with the grid established by the train lines below. The first structural system relies primarily on the beam and column grid in order to effectively transfer loads to the ground below. The second system is uses the same column and beam principle, but the columns are embedded into structural walls that run parallel to the train lines. Figure ~ (right) shows the location of the different structures within the flyover.

The information presented in this study comes primarily from the technical drawings of the site that were recovered from the Cape Town City Council. The rest of the information provided come from conversations with a Civil Engineer (James Murray, MSc Civil Engineering, UCT) who agreed to provide input in looking over and clarifying the technical drawings provided. Mr Murray was referred to in order to clarify aspects of the existing flyover system that were not fully understood.

The Structural System of the Flyover

The primary loads that the structure supports are as follows:
-Dead loads: The weight of the structure itself, including the non-structural permanent elements of the flyover. This includes the weight of the shops located near the taxi rank, the buildings that rests atop the flyover (The new concourse) and the roofing system over the taxi stop.
- Live loads: The movable objects on the flyover: the people, cars, buses and taxis that use the flyover system on a daily basis. This load is constantly in flux, as the load that the users and vehicles are transferring to the structure is constantly changing.

Environmental loads:
- Wind loads: This type of load bares more importance in lighter construction, as it refers to the loads that the wind exerts on the structure. As the structure is comprised primarily of heavy, dense materials (reinforced concrete columns and beams) the dead load of the structure is sufficient to counteract the negative effects a wind load would have on the system.

-Hydrostatic loads: Given the extensive and flat ground plane of the flyover, the system accrues a large volume of liquid (primarily rain) that acts upon it. This is dealt with through raked surfaces, running towards drainage systems located at grid points on the structure.

- Thermal loads: Temperature change causes materials to expand and contract. This is necessary to consider especially with larger structures, as they will expand and contract to a greater degree. The flyover comprises a long, continuous structural system, but is broken up into smaller portions able to expand and contract independently. This is achieved through expansion joints aligned with the structural grid to allow the portions to expand and contract as necessary without causing damage to the structure.

The design implications of this study indicate that the flyover structure will be able to bear the greatest load if the structure of the design intervention is aligned with the grid system established below. Provisional estimates of the structure indicate that the possibility that further building be constructed to a load similar to that of the existing Non-White Main Line Concourse, however this is contingent on a full engineer's report on the existing structure. Any design intervention into the flyover system will require an understanding of the way in which the structure deals with all of the loads operating upon it, and this investigation provides valuable information in this regard. The following section furthers the inquiry into how the structure deals with all of the loads known to be acting up on the system.

The structural system of the flyover comprises of two main systems. Figure ~ indicates system A. Refer to figure ~ for the locations of the respective systems.

Substructure:

Pile foundations were used in throughout the system. As such, the columns start below ground level and run up through the platforms, terminating at the reinforced concrete beams (referred to as beam caps)

.

Figure 41 shows the columns of the system A (painted blue). Here, the span between columns parallel to the train tracks is 7315mm refer to figure ~ for clarification). This is the grid width. Perpendicular to the grid width, the distance between columns varies. The near span (occurring between columns on the same platform) is approximately 4000mm, whereas the span across the tracks is normally around 14 000mm. An in situ cast concrete cap tops the columns, running parallel to the tracks. This secures the columns together along this axis.

Structural system B is similar to system A in that it also utilises the column and beam method, however the columns are located at 3657,5mm intervals parallel to the train tracks – half of the distance of system A. The columns are cast into walls to provide more stability to the structure.

The column and beam system (system A) beneath the site (author's image)

Structural system B is similar to system A in that it also utilises the column and beam method, however the columns are located at 3657,5mm intervals parallel to the train tracks – half of the distance of system A. The columns are cast into walls to provide more stability to the structure.

This is done due to the fact that the strain tracks curve in in the other direction, meaning the walls are not parallel to one another. The engineer has noted that in the case of an architectural intervention into the site similar to the existing building in structural system 2, extra structure will be required to support the load.

The second structural system beneath the flyover level. Columns are cast into a concrete walling system to provide extra support to the structure.

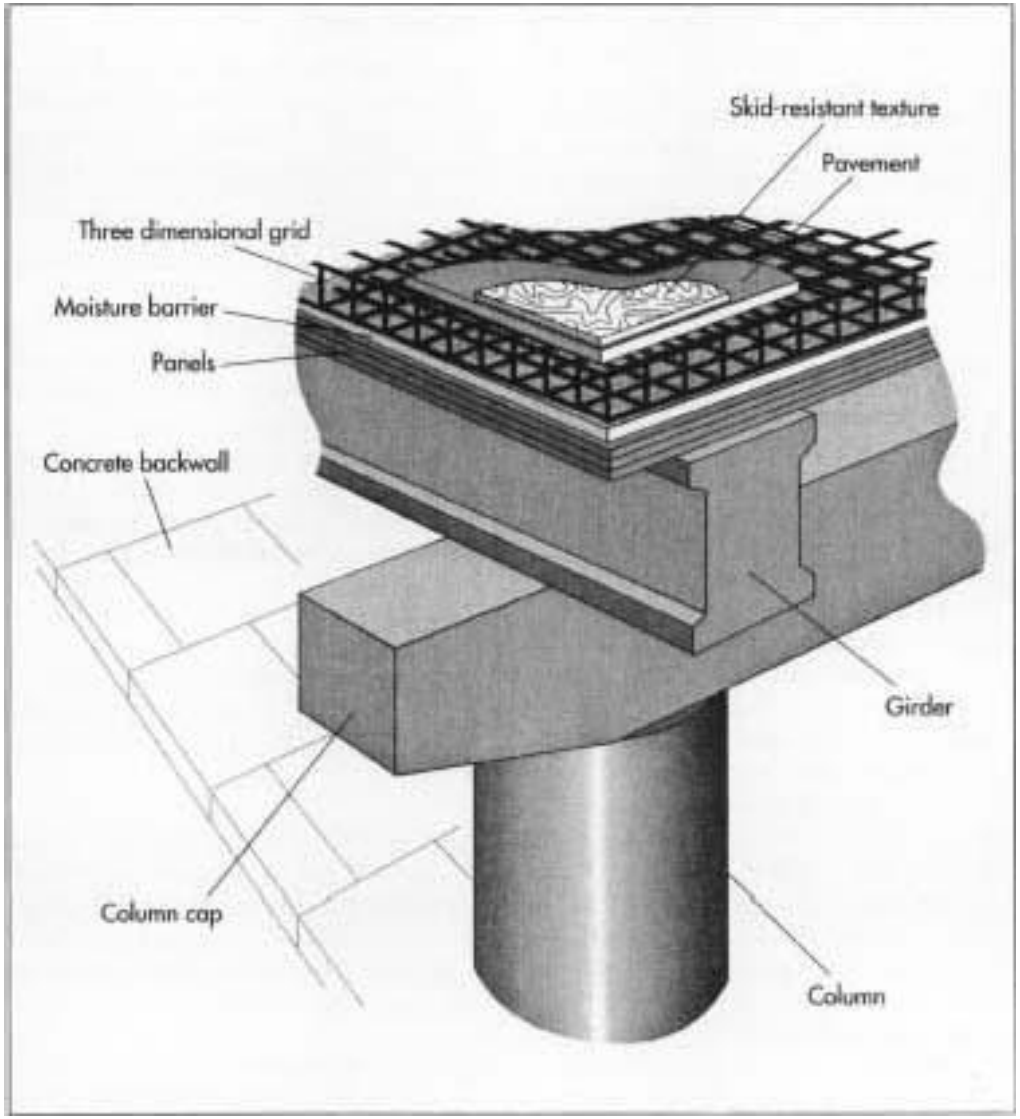
Superstructure:

Figure ~ is a typical detail for concrete bridges. In the case of the flyover, the superstructure is composed of prestressed, reinforced concrete girders with precast concrete slabs secured on top of them. These slabs ae made up of concrete panels that interlock to form a solid surface (indicated as ‘panels’ in figure ~). In the case of the flyover, the concrete girders run perpendicular to the train lines and are placed at 1200mm intervals. They are 220x1500mm in dimension, adding significant depth to the structural system. These girders are bolted to the concrete caps below to secure them in place. The panels used in the system are coffer slabs of 220mm depth.

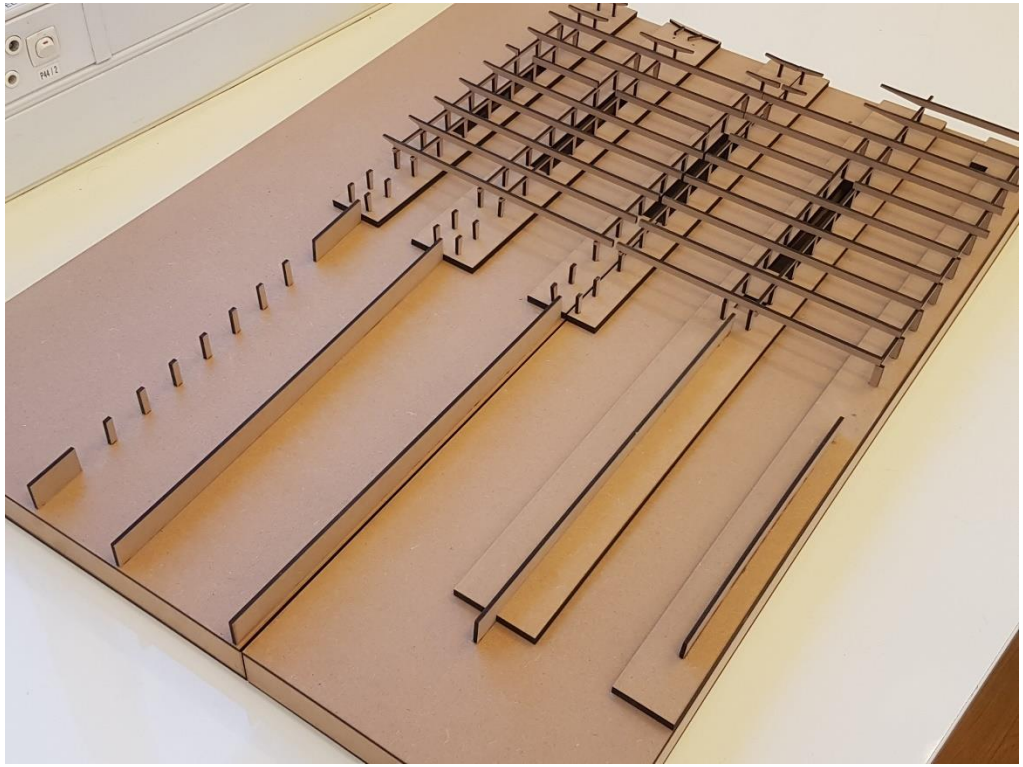
The Deck:

The research conducted was unable to uncover the precise material makeup of the decking, however by researching other similar cases, one can infer this information.

A moisture barrier (possibly bituminous) was likely applied directly to the slabs. Thereafter, a steel rebar 3D grid is placed atop this layer and concrete is cast into this structure to make up the final concrete layer. This layer is likely 30mm thick. Thereafter a layer of finish is added on top. In portions, asphalt is used to provide for a slip resistant material for cars to drive upon. In other places, topsoil is used to grow a layer of grass on the surface. The pavements are finished with precast concrete blocks.



Typical detail for concrete bridge. The makeup of the flyover is the same as this system, including the panels, moisture barrier and paving atop the girders, although the shape and sizing of main structural elements is as described above.

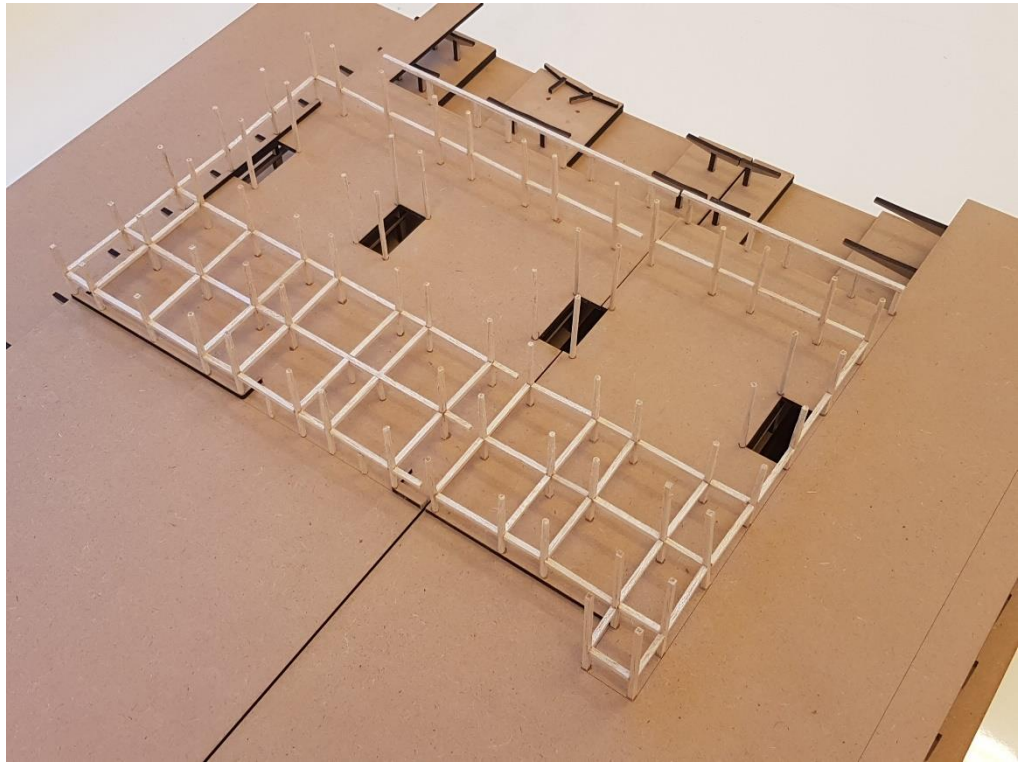


Preliminary engineer’s input notes that the grid of the structural system underneath the site (figure ~) departs from the grid of the rest of the flyover system. This portion (system B) is where the columns are cast into supporting walls. Here the engineer has noted that the loadbearing capability of the columns is less than that of the system A.

Model of structure at ground level of site (own model and image). The multiple structural systems are visible here.

CONCLUSIONS

The research into the existing structure has yielded important findings for this project. Engineer's input has pointed to the fact that while the first structural system (Figure ~) will be able to bear the load similar to that of the existing building (contingent on a full Engineer's report on the state of the structure) the second structural system, which supports the portion of the site in front of the building, would require greater substructure in order to support a design intervention upon it. The investigation also indicates how interacting with the existing structure will require significant input from engineers to prohibit the compromising of the flyover structure.



Structural system for the existing building (own model and image).

Application for Approval of Ethics in Research (EIR) Projects
Faculty of Engineering and the Built Environment, University of Cape Town

APPLICATION FORM

Please Note:
Any person planning to undertake research in the Faculty of Engineering and the Built Environment (EBE) at the University of Cape Town is required to complete this form **before** collecting or analysing data.The objective of submitting this application *prior* to embarking on research is to ensure that the highest ethical standards in research, conducted under the auspices of the EBE Faculty, are met. Please ensure that you have read, and understood the **EBE Ethics in Research Handbook**(available from the UCT EBE, Research Ethics website) prior to completing this application form: http://www.ebe.uct.ac.za/usr/ebe/research/ethics.pdf

APPLICANT'S DETAILS		
Name of principal researcher, student or external applicant		Mr Tomas Wren-Sargent
Department		Architecture, Planning and Geomatics
Preferred email address of applicant:		tomaswrensargent@gmail.com
If a Student	Your Degree: e.g., MSc, PhD, etc.,	March (Prof)
	Name of Supervisor (if supervised):	Stella Papanicolaou
If this is a researchcontract, indicate the source of funding/sponsorship		
Project Title		Adaptive Reuse of disused structures in the Foreshore district of Cape Town

I hereby undertake to carry out my research in such a way that:

- there is no apparent legal objection to the nature or the method of research; and
- the research will not compromise staff or students or the other responsibilities of the University;
- the stated objective will be achieved, and the findings will have a high degree of validity;
- limitations and alternative interpretations will be considered;
- the findings could be subject to peer review and publicly available; and
- I will comply with the conventions of copyright and avoid any practice that would constitute plagiarism.

SIGNED BY	Full name	Signature	Date
Principal Researcher/ Student/External applicant	Tomas Paul Wren-Sargent		~~Click here to enter a date.~~ 23/3/17

APPLICATION APPROVED BY	Full name	Signature	Date
Supervisor (where applicable)	Ms Stella ~~Click here to enter text.~~ Papanicolaou		23.03.'17 ~~Click here to enter a date.~~
HOD (or delegated nominee) Final authority for all applicants who have answered NO to all questions in Section1; and for all Undergraduateresearch (Including Honours).	Mr Toma ~~Click here to enter text.~~ Berlanda		~~Click here to enter a date.~~
Chair : Faculty EIR Committee For applicants other than undergraduate students who have answered YES to any of the above questions.	G. SITHOLE ~~Click here to enter text.~~		22/7/2017 ~~Click here to enter a date.~~